



Rethinking cryptocurrency regulation in South Africa: in search of an effective legal and regulatory framework

MA Mamooe



orcid.org 0000-0001-6452-0222

Thesis accepted in fulfilment of the requirements for the degree *Doctor of Laws with Trade and Business Law* at the North-West University

Promoter: Prof W Erlank

Graduation: October 2025

ABSTRACT

Cryptocurrency is a digital form of value that is not issued by a central bank. Instead, it uses blockchain technology to record transactions and create new units within a peer-to-peer network. Cryptocurrencies first appeared on the market in 2009 in the form of Bitcoin and were not well known internationally at the time. Over the years, however, cryptocurrency has grown in popularity as acceptance of the technology increased among users worldwide. It finally found its way onto the South African market in 2015.

Cryptocurrencies are decentralised, self-governing and pseudo-anonymous, allowing them to bypass the customer identity requirements of the traditional financial sector. This creates a platform for criminal or illicit purposes for those seeking to evade compliance with financial laws, posing risks in terms of consumer and investor protection, AML/CFT, taxation and cross-border currency flows.

Cryptocurrency does not only have an impact on payment and settlement systems, but also on the financial markets. It can be deduced from this that the development and gradual integration of cryptocurrency into the overall economy poses a threat to the traditional financial sector as long as cryptocurrency remains unregulated.

Currently, South Africa has slowly taken the first steps to regulate cryptocurrencies following increased public interest and participation in cryptocurrency activities. Therefore, the study argues in favour of a comprehensive regulatory framework based on the assumption that bringing cryptocurrencies into the realm of regulation will eliminate the identified risks. Once they can be traced from user to user, cryptocurrencies will no longer be considered for money laundering purposes or the financing of illegal activities.

The future of cryptocurrencies is uncertain, but their impact on the global economy and their growth potential are undeniable. Therefore, the need to regulate cryptocurrencies is imminent. From a South African perspective, the question naturally arises as to what extent the existing financial sector regulatory framework can accommodate and better govern the regulation of cryptocurrencies and their

use. To answer this question, the study analyses the existing financial sector laws and determines which areas can best be applied to cryptocurrencies. The study conducts an analysis of the South African landscape along that of pioneers in cryptocurrency regulation, namely Japan, Canada and the US, and identifies potential lessons that can be applied to the South African position. The study further explores the applicability of the findings to the greater global South, including the contribution of cryptocurrencies to bridging the financial inclusion gap.

The growing popularity of cryptocurrencies is proof that they are on the rise. The nuances surrounding their use and regulation are constantly evolving, and there is not enough literature to support this change. Therefore, there is an urgent need to conduct this study.

The main contribution of the study is therefore the in-depth examination of the regulation of cryptocurrencies, a developing area of law in South Africa, by comparing it with approaches in Canada, Japan and the United States. It also examines how regulators are adapting to integrate this innovation into the existing financial environment.

Keywords

Economic crises, evolution of the international monetary system, Fintech, cryptocurrency, financial inclusion, illicit financial flows, financial sector stability and integrity, financial regulation, cryptocurrency regulation.

ACKNOWLEDGEMENTS

I would like to thank the Faculty of Law for the opportunity to undertake this research and the North-West University Postgraduate Bursary Scheme for part-funding my studies.

A special thank you goes to my promoter, Professor Wian Erlank for his invaluable advice and contributions.

I would like to thank my peers for their constructive criticism and the overwhelming encouragement they have given me along the way.

I would also like to thank Dr. John Mambambo, for the technical and linguistic editing of this work.

And to God, without whom I am nothing, I shall forever be grateful.

DEDICATION

I thank my parents—my pillars—for creating an environment in which I can dream. I admire you for raising me with care. Every word, every action, every prayer over my life was a confirmation of the depth of your love for me, which is immeasurable.

My brothers, I am strong because you prayed for me and believed in me. You have accompanied me through this difficult journey and motivated me to keep going when I no longer could.

I would like to honour you all with this work, which would have been impossible without your tireless support.

Lastly, I thank myself for the courage to endure, the grace to grow, and the strength to rise above each challenge, for persevering even when the odds felt insurmountable.

To my niece and nephews, to my future children, may the thirst for knowledge and devotion to education be your centre.

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LIST OF ACRONYMS

AfCFTA	African Continental Free Trade Area
AJICL	African Journal of International and Comparative Law
AML	Anti-Money Laundering
BIS	Bank for International Settlements
CAESP	Crypto Asset Exchange Service Providers
CARWG	Cryptocurrency Regulatory Working Group
CASP	Crypto Asset Service Providers
CATP	Crypto Asset Trading Platforms
CFPB	Consumer Financial Protection Bureau
CFT	Counter Terrorist Financing
CFTC	Commodity Futures Trading Commission
CMLJ	Capital Markets Law Journal
ERTR	Electronically Recorded Transferable Rights
FATF	Financial Task Force
FIB	Financial Insurance Business
FinCEN	Financial Crimes Enforcement Network
FinSurv	Financial Surveillance
FinTRAC	Financial Transactions and Reports Analysis Centre
FMSB	Foreign Money Services Businesses
FSCA	Financial Sector Conduct Authority
GAO	Government Accountability Office
Harv JL & Tech	Harvard Law Journal and Technology
ICO	Initial Coin Offering
IFWG	Intergovernmental Fintech Working Group
IMF	International Monetary Fund
IMS	International Monetary System
JABES	Journal of Agricultural, Biological and Environmental Statistics
IRS	Internal Revenue Services
JFSA	Financial Services Agency of Japan
JSTOA	Japan Security Token Association
JVCEA	Japan Virtual and Crypto Assets Exchange Association
KYC	Know Your Customer
MDB	Multi-lateral Development Bank
MSB	Money Services Business
MSME	Micro, Small and Medium Enterprises
NPSA	National Payment System Act No.78 of 1998
NYDFS	New York Department of Financial Services
OFAC	Office of Foreign Asset Control
OTC	Over the Counter
PA	Prudential Authority
PASA	Payment Association of South Africa
PEJL	Potchefstroom Electronic Law Journal
PSMB	Payment System Management Body
RMCP	Risk Management Compliance Programme
SANT	South African National Treasury

SA MERC LJ	South African Mercantile Law Journal
SARB	South African Reserve Bank
SARS	South African Revenue Authority
SEC	Securities and Exchanges Commission
SRO	Self-Regulatory Organisation
SSA	Sub-Saharan Africa
SSRN	Social Science Research Network
STO	Security Token Offerings
THRHR	The Journal of Contemporary Roman-Dutch Law
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
VASP	Virtual Asset Service Providers
VAT	Value Added Tax
WB	World Bank

CHAPTER 1: INTRODUCTION

1.1 General introduction

The institution of cryptocurrencies, in particular Bitcoin in 2009, has drastically changed the global financial environment and challenged the established notions of currency, value exchange and financial governance.¹ The rapid growth of cryptocurrencies and their underlying blockchain technology has forced regulators, policy makers and industry representatives to grapple with numerous opportunities and challenges.² These challenges include the need for effective regulation to protect investors and consumers, prevent illicit financial activity, and maintain the stability of the financial system.³

As cryptocurrencies gain global acceptance, the need for a thorough regulatory framework is becoming increasingly clear.⁴ Regulators and policy makers are faced with the difficult task of balancing the promotion of innovation with the need to ensure the stability and integrity of the financial system.⁵ Key areas to focus on when establishing regulations for cryptocurrencies include their classification, harmonisation with existing financial laws, measures to protect consumers and investors, and the prevention of financial crimes such as money laundering, terrorist financing and tax evasion.⁶

This study aims to enrich the current discussions on the future of finance in the context of transformative financial technologies, in particular cryptocurrencies, and their governance. It aims to address the complicated challenges faced by regulators and policy makers and propose creative regulatory strategies for cryptocurrencies. Given the global proliferation of cryptocurrencies, the study also emphasises the

¹ Kukacka and Kristoufek 2023 *Financial Innovation* 1.

² Aquilina et al "Cryptocurrencies and Decentralised Finance: Functions and Financial Stability Implications" 4.

³ Cambridge Centre for Alternative Finance "The 2nd Global Crypto Asset Regulatory Landscape Study"33.

⁴ Adrian et 2023 <https://www.imf.org/en/Blogs/Articles/2023/07/18/crypto-needs-comprehensive-policies-to-protect-economies-and-investors>.

⁵ World Bank Group "Regulation and Supervision of Fintech: Considerations for EMDE Policymakers"1.

⁶ IMF "Elements of Effective Policies for Crypto Assets" 17.

need for international cooperation between different jurisdictions in addressing regulatory issues.

The following sections explain the context of the study, describe the problem, outline the objectives of the study and emphasise the importance of the study for understanding and influencing the regulatory structure for cryptocurrencies.

1.2 Background and problem statement

To understand the concept of cryptocurrencies, it is necessary to understand the nature and use of currencies, especially electronic currencies.⁷ Currency generally depends on the usefulness associated with various forms of objects used in trade.⁸ Until around 600 BCE, the transfer of values took place through a barter system in which goods were exchanged for each other.⁹ However, this system was flawed and eventually fell into disuse.¹⁰ On the one hand, it was based on shared needs,¹¹ familiarity and trust and was therefore limited to the immediate social circles.¹²

In order to speed up trade and avoid the above-mentioned problems of the barter system, people emphasised coins and later paper money, as carrying coins proved to be unsafe and expensive.¹³ The bearer of paper money would receive the value in metal that corresponds to the value on the front of the paper money.¹⁴ This meant that money could only be exchanged as long as the metal reserves supported it,¹⁵ and if they did not, then confidence in the system was shaken.¹⁶

⁷ Walton 2014 *SSRN* 6.

⁸ Madinger *Money Laundering: A Guide for Criminal Investigators* 1.

⁹ Investopedia 2019 <https://www.investopedia.com/insights/what-is-money/>.

¹⁰ Wray 1993 "The Origins of Money and the Development of the Modern Financial System" 2.

¹¹ Iwai 1997 "Evolution of Money" 19.

¹² Banerjee and Maskin 1996 *Quarterly Journal of Economics* 957.

¹³ Guadamuz and Marsden 2015 *SSRN* 4.

¹⁴ Guadamuz and Marsden 2015 *SSRN* 4.

¹⁵ White 2013 *Cato Institute Policy Analysis* 3.

¹⁶ Lioudis 2019 <https://www.investopedia.com/ask/answers/09/gold-standard.asp>. This became apparent during World War I as gold supplies deteriorated- falling behind global economic growth and causing countries to begin to hold more coins and paper money instead of gold.

This was soon replaced by the fiat money trading system,¹⁷ whose basis of value depends on the wealth and economic trustworthiness of a country.¹⁸ It is the perfect answer to the gaps in previous systems, as it enables multiple exchanges on a global level - in real time.¹⁹ This means that the holder of a fiat currency is able to buy a variety of goods and services as needed without having to exchange one good or service for another. In addition, a fiat currency is able to store value²⁰ so that people can easily pursue other economic activities in the future.²¹

The fiat money system has evolved over the years, as the global networking of banks and financial markets shows.²² Unlike its predecessors,²³ the fiat monetary system has contributed the most to decades of global growth;²⁴ however, this does not mean that this system is immune to shortcomings.²⁵ In 2008 in particular, the world experienced a recession due to imbalances within the fiat currency system caused by

¹⁷ Agarwal 2018 <https://www.intelligenteconomist.com/monetary-systems/>. "A fiat currency is a recognised currency issued by a government and declared legal tender for the conduct of economic activities. A true fiat currency is not backed by the value of a commodity and therefore cannot be exchanged for metals such as silver or gold. Instead, its value is influenced by its availability on the market and consumer interest in the currency, as well as the credibility and economic performance of the issuing government. For a fiat currency to retain its value and be successful, a government and its central bank must ensure that the currency cannot be easily counterfeited and that the supply of the currency is well managed within healthy inflation targets, otherwise people would lose confidence in the currency and its value would decline. The advantages of fiat currencies include the manageable production costs of producing fiat currencies compared to the costs of producing commodity-backed currencies, the convenience of not needing large storage reserves as would be the case with silver and gold, the flexibility of governments and their central banks in dealing with economic crises, and the acceptability and usability of fiat currencies in international trade. Some economists have argued that the non-intrinsic value of fiat currencies could incentivise governments to print more money, which could lead to hyperinflation, the effects of which could ultimately destroy a country's economy."

¹⁸ Chen 2019 <https://www.investopedia.com/terms/f/fiatmoney.asp>.

¹⁹ CFI <https://corporatefinanceinstitute.com/resources/knowledge/economics/fiat-money-currency/>.

²⁰ Numa 2019 *SSRN* 22; Asmundson and Oner 2012 *Finance and Development* 52. A store of value denotes the ability of a physical asset to remain useful and retain its purchasing power until such later time that it is retrieved.

²¹ CFI <https://corporatefinanceinstitute.com/resources/knowledge/economics/fiat-money-currency/>.

²² Mohan, Patra and Kapur "The International Monetary System: Where are We and Where Do We Need to Go?" 3.

²³ That is, the barter system as well as commodity money such as dried grain and metal money such as silver and gold. These goods were widely accepted by society as useful and were given value, so they began to be used as a medium of exchange in transactions. Investopedia 2019 *What is Money?* <https://www.investopedia.com/insights/what-is-money/>.

²⁴ Huwart, Yves and Verdier 2013 *OECD Journal* 132.

²⁵ Mohan, Patra and Kapur "The International Monetary System: Where are We and Where Do We Need to Go?" 7. With the advent of the fiat currency system, the number of financial crises has increased significantly as a result of floating exchange rates, free capital flows and autonomous monetary policy. These aspects of the international fiat currency system are symptomatic of global economic instability.

distorted global regulation and economic policy which included unchecked risk-taking by financial institutions, the proliferation of opaque financial instruments such as mortgage-backed securities, and the failure of regulatory bodies to detect or act on warning signs.²⁶

During this period, central banks and governments responded with massive bailouts and unprecedented monetary interventions, such as quantitative easing, which raised concerns about inflation, moral hazard, and the concentration of power in a few centralised institutions.²⁷ This exposed the fragility of a global financial system dependent on trust in centralised actors, many of whom had acted irresponsibly.²⁸

After the 2008 financial crisis, society's trust in the fiat monetary system significantly declined.²⁹ The crisis had exposed deep flaws in traditional financial systems, including unchecked risk-taking by major institutions, insufficient regulatory oversight, and the vulnerabilities of centralised monetary control.³⁰ In response, alternative currencies began to emerge within virtual communities,³¹ as a means of avoiding the systemic risks associated with fiat-based markets.³²

One of the most prominent outcomes of this shift was the creation of Bitcoin in 2009, a decentralised, peer-to-peer digital currency that offered a radically different approach to money.³³ Bitcoin quickly gained recognition and has become the most widely known cryptocurrency to date.³⁴ It exemplifies a broader movement toward virtual currencies, which are increasingly heralded as tools for overcoming structural barriers embedded in the fiat system; barriers that often separate consumers from

²⁶ Beale "Roots of the 2008 Financial Crisis, Fair Value Accounting, and Regulatory Reform" 349-376.

²⁷ Dell'Ariccia and Ratnovski "Bailouts and Systemic Insurance" 3-4.

²⁸ Huwart, Yves and Verdier 2013 *OECD Journal* 140-142.

²⁹ He 2018 *IMF Finance and Development Magazine* 14.

³⁰ Munshi and Deshpande 2024 *Educational Administration: Theory and Practice* 5060-5061.

³¹ Dholakia, Bagozzi and Pearo 2003 *SSRN* 3; Porter 2004 <https://doi.org/10.1111/j.1083-6101.2004.tb00228.x>. There is no universal definition of virtual communities, but they are generally understood as a group of individual consumers or businesses interacting online to pursue a common interest, where this interaction is to some extent supported by technology and governed by certain procedures and systems and/or norms. A great illustration of what a virtual community comprises and how it works is given by Lastowka and Hunter 2004 *California Law Review* 3-7.

³² He 2018 *IMF Finance and Development Magazine* 14.

³³ Sveriges Riksbank "Sveriges Riksbank Economic Review" 73.

³⁴ Frankenfield 2019 <https://www.investopedia.com/terms/c/cryptocurrency.asp>.

producers, banked from unbanked populations, and the wealthy from the poor.³⁵ This is especially relevant in developing countries, where a significant portion of the population lacks access to formal banking services.³⁶

Cryptocurrencies, in general, present several advantages over traditional fiat currencies.³⁷ Most notably, they are decentralised, reducing the risk of single points of failure and minimising opportunities for corruption or misuse of power.³⁸ Their transparency, made possible through public blockchains, ensures real-time auditability and fosters greater accountability in financial transactions.³⁹ Additionally, blockchain networks are programmable, enabling the development of smart contracts and decentralised financial applications that can operate automatically without intermediaries.⁴⁰ Perhaps most importantly, cryptocurrencies support financial inclusion by providing access to essential financial tools for millions of people who are excluded from the conventional financial system due to geographic, economic, or political barriers.⁴¹

In this way, the rise of cryptocurrencies can be seen not merely as a technological innovation, but as a social and economic response to the limitations and failures of the existing monetary order; one that aspires to create a more open, equitable, and resilient global financial ecosystem.⁴²

The fact that cryptocurrencies have both potential risks and benefits is one of the causes of the controversy surrounding them.⁴³ The emergence of cryptocurrencies has caused an upheaval, the effects of which have been compared to those of the internet, with some calling it "the greatest technological breakthrough since the

³⁵ Kearney 2015 <http://www.iol.co.za/personal-finance/digital-curencies-the-risk-is-yours-1937266>.

³⁶ Kearney 2015 <http://www.iol.co.za/personal-finance/digital-curencies-the-risk-is-yours-1937266>.

³⁷ Zeyu 2024 *Journal of Statistics and Economics* 98-99.

³⁸ Makarov and Schoar "Cryptocurrencies and Decentralised Finance" 5.

³⁹ Adewale and Olorunyomi 2022 *International Journal of Frontiers in Science and Technology Research* 26.

⁴⁰ Pasdar, Dong and Lee 2021 *ArXiv* 22.

⁴¹ Hajj and Farran 2024 *Journal of Risk and Financial Management* 1-6.

⁴² Eckhardt and Glückler 2025 *Progress in Economic Geography* 2.

⁴³ Garg 2017 <https://www.thestatesman.com/opinion/the-cryptocurrency-conundrum-1502542873.html/amp>. The international community is confronted with two conflicting interests, namely to promote innovation and to establish adequate controls to prevent illegal activities without stifling the former interest.

internet".⁴⁴ It is estimated that more than 6000 cryptocurrencies existed worldwide as of August 2021.⁴⁵ While the existence of some of these cryptocurrencies may be negligible, some are immensely popular. As the FATF notes, cryptocurrencies are spreading rapidly due to improved functionalities.⁴⁶ This has led to wider adoption at a global level, so that individual national measures are required.⁴⁷

The SARB also acknowledged the growth potential of Bitcoin within the existing regulatory environment but nonetheless adopted a cautious and measured approach.⁴⁸ When cryptocurrencies first emerged, SARB did not recognise them as legal tender or securities under South African law, meaning they held no official legal status.⁴⁹ As a result, the sector operated without regulation, and users engaged with virtual currencies at their own risk, with no legal protection or consumer recourse. SARB raised concerns about the volatility of these assets, their susceptibility to fraud, and their potential to undermine financial controls such as exchange regulations.⁵⁰ Despite these risks, the Reserve Bank refrained from banning cryptocurrencies outright, choosing instead to monitor their development closely while considering the formulation of risk-based regulatory responses over time.⁵¹

The appeal of cryptocurrencies, which is described in more detail below, is mainly due to their decentralised nature and the fact that all one needs to operate and use them is a computer connected to the internet.⁵²

With the exception of cryptocurrency, digital currencies and other online payment systems in South Africa are subject to regulation by various laws such as the *Financial Sector Regulation Act*.⁵³ It introduced the Twin Peaks model of oversight, which includes the Prudential Authority and the Financial Sector Conduct Authority;

⁴⁴ Efanov and Roschin 2018 *Procedia Computer Science Journal* 116.

⁴⁵ De Best 2021 <https://www.statista.com/statistics/863917/number-crypto-coins-tokens/>.

⁴⁶ FATF "Guidance for a Risk Based Approach: Virtual Currencies" 4.

⁴⁷ FATF "Guidance for a Risk Based Approach: Virtual Currencies" 4.

⁴⁸ SARB "Position Paper on Virtual Currencies" 1-13.

⁴⁹ SARB "Position Paper on Virtual Currencies" 1-13.

⁵⁰ SARB "Position Paper on Virtual Currencies" 1-13.

⁵¹ SARB "Position Paper on Virtual Currencies" 3. Nonetheless, it

⁵² Zelick and Baros "Cryptocurrency: General Challenges of Legal Regulation and the Swiss Model of Regulation" 168.

⁵³ *Financial Sector Regulation Act* 9 of 2017.

the latter of which supervises market conduct of financial services providers, including some online payment operators.⁵⁴

The *National Payment System Act* governs the country's payment infrastructure, placing responsibility on the SARB to regulate payment system operators, clearing participants, and systemically important payment systems.⁵⁵ Where service providers engage in deposit-taking or issue electronic money, the *Banks Act* may apply, requiring a banking licence.⁵⁶

Additionally, the *Financial Intelligence Centre Act* imposes anti-money laundering and counter-terrorist financing obligations on accountable institutions, including certain digital payment providers, mandating customer due diligence, reporting, and record-keeping.⁵⁷

The *Electronic Communications and Transactions Act* offers a legal framework for electronic transactions, while the *Protection of Personal Information Act* regulates the collection and handling of personal data within digital payment systems.⁵⁸ Lastly, the *Consumer Protection Act* ensures that consumers engaging with these platforms are treated fairly and provided with adequate transparency and recourse.⁵⁹

Collectively, these laws provide a robust regulatory framework for digital and online payment systems in South Africa, in contrast to the more cautious and developing approach to cryptocurrency regulation.⁶⁰

Virtual currencies are based on distributed ledger technology that operates in peer-to-peer networks.⁶¹ They essentially bypass a centralised authority or middleman, and carry out a transaction without regulation.⁶² Data is collected from multiple

⁵⁴ FSCA Date Unknown <https://www.fsca.co.za/TPNL/1/FSB/thephilosophy.html>.

⁵⁵ *National Payment System Act* 78 of 1998.

⁵⁶ *Banks Act* 94 of 1990.

⁵⁷ *Financial Intelligence Centre Act* 38 of 2001.

⁵⁸ *Electronic Communications and Transactions Act* 25 of 2002.

⁵⁹ *Consumer Protection Act* 68 of 2008.

⁶⁰ Heunis *The Regulation of electronic payments in South Africa* 15-19.

⁶¹ IMF "Virtual Currencies and Beyond: Initial Considerations" 6.

⁶² Gupta 2017 <https://www.google.com/amp/s/hbr.org/amp/2017/03/the-promise-of-block-chain-is-a-world-without-middlemen>.

computers on the same network and must solve a complex mathematical problem before the data can be added to the ledger and stored publicly.⁶³

Proponents of this system explain that it has the potential to maximise efficiency through fast, peer-to-peer transactions and automated smart contracts that reduce reliance on intermediaries, bridge income inequality, reduce transactional costs especially for cross-border payments, by eliminating traditional banking fees and improve accessibility for the unbanked and underbanked, particularly in developing regions by offering open access to financial services via smartphones and the internet.⁶⁴ Furthermore, it can help bridge income inequality by enabling broader participation in global financial markets and providing alternative means to save, borrow, and invest without the barriers of traditional financial systems.⁶⁵

Due to these characteristics, the emergence and promotion of cryptocurrency has puzzled central banks around the world, as they fall outside their regulatory remit.⁶⁶ Without an issuing body and a central authority, it is difficult to control currency flows,⁶⁷ and the enforcement of regulations to stabilise the economy and protect consumers.⁶⁸

This exposes the financial system to a market failure that could potentially open a gateway for illicit financial flows, violations of tax and exchange control laws and terrorist activities.⁶⁹ In order to highlight these and some of the other frequently mentioned risks, these risks are briefly explained below.

⁶³ Vivanco and Pieters 2016 *SSRN* 3.

⁶⁴ Reyes 2016 *Villanova Law Review* 192.

⁶⁵ Rice *Cryptocurrency: History, Advantages, Disadvantages, and the Future* 14.

⁶⁶ The Law Library of Congress 2018 <https://www.loc.gov/law/help/cryptocurrency/world-survey.php>. An overview of the legal and political landscape around cryptocurrencies around the world shows that several countries have issued warnings through their central banks pointing out the pitfalls of investing in cryptocurrencies and distinguishing them from fiat currencies issued and authenticated by governments.

⁶⁷ Lu 2018 *Journal of International Banking and Financial Law* 181. Central Banks may be in a better position to control currency flows and detect financial risks occasioned by cryptocurrencies if they support it.

⁶⁸ Tu and Meredith 2015 *Washington Law Review* 296-297.

⁶⁹ Marian 2015 *The University of Chicago Law Review* 56, 57.

One of the biggest risks of cryptocurrency is money laundering.⁷⁰ The pseudonymous and decentralised nature of cryptocurrencies functions in the same way as anonymous cash in the fiat money system,⁷¹ in that it encourages the commission of crime.⁷² Likewise, criminals could potentially use the functions of cryptocurrencies as a mechanism to hide income from the authorities and evade taxes.⁷³

As cryptocurrencies are technically very complicated and unfamiliar to the average consumer, malicious actors could capitalise on this lack of knowledge by deceiving consumers,⁷⁴ who, for example, do not know how much money they are entitled to.⁷⁵ This could also mean that consumers may be charged exorbitant fees for using the currency or that they are unaware of some of the weaknesses of cryptocurrency,

⁷⁰ FATF "Virtual Currencies: Key Definitions and Potential AML/CFT Risks" 9. Van Jaarsveld *Aspects of Money Laundering in South African Law* 193-200; McDowell 2001 *Economic Perspectives* 6-8; Ncube and Kabwe 2023 *De Jure Law Journal* 355; Kempen *Servamus Community-based Safety and Security Magazine* 54; Erasmus and Bowden 2020 *OBITER* 310. "Money laundering is a serious crime with a negative impact on the economy, society and financial systems. The adequacy of the current regulatory framework to prevent and combat money laundering activities is the subject of debate in South Africa, as cryptocurrencies have proven to be a popular means of investment and payment globally. The characteristic decentralisation and pseudo-anonymity of cryptocurrencies makes them a gateway for money laundering activities. Prior to the emergence of cryptocurrencies, the South African financial sector had already proactively introduced anti-money laundering legislation." The *Prevention of Organised Crime Act* 121 of 1998 (POCA) which bans racketeering activities and makes money laundering a criminal offense. The *Protection of Constitutional Democracy against Terrorist and Related Activities Act* 33 of 2004 (POCDATARA) "aims to combat terrorism-related activities, as well as the financing of terrorism and related activities." The law does not explicitly prohibit money laundering, but it is an offence to use money laundering to finance terrorist activities. "The aforementioned laws are not sufficient to effectively curb money laundering on their own. Therefore, the *FICA* 38 of 2001 was enacted in line with international standards as South Africa's main legislative framework to combat financial crime in South African banking institutions. However, in recent years, as more and more transactions have been conducted using cryptocurrencies, there has been growing concern about the role of cryptocurrencies in facilitating illicit activities, particularly money laundering. Therefore, South African policy has taken several measures to address this issue. These measures include the obligation to register cryptocurrency service providers with the FIC. This also includes the introduction of the Intergovernmental Fintech Working Group (IFWG), which deals with the regulation of the cryptocurrency sector and provides guidance to cryptocurrency service providers on how to comply with anti-money laundering regulations in the areas of customer due diligence, transaction monitoring and suspicious transaction reporting." The regulation of cryptocurrencies is covered in detail in the following chapters.

⁷¹ Stroukal and Nedvedova "Bitcoin and Other Currency as an Instrument of Crime in Cyberspace"

⁷² Wright, Tekin and Topalli "Less Cash, Less Crime: Evidence from the Electronic Benefit Transfer Program" 4.

⁷³ Congressional Research Service "Cryptocurrency: The Economics of Money and Selected Policy Issues" 18.

⁷⁴ New York State OAG 2018 <https://virtualmarkets.ag.ny.gov/>.

⁷⁵ Perkins "Cryptocurrency: The Economics of Money and Selected Policy Issues" 21.

such as possible loss of value, theft or loss of access.⁷⁶ In short, the lack of a central authority makes consumers vulnerable.⁷⁷

In the face of these and other potential threats, most regulators and policy makers around the world are vigorously enforcing existing regulations against these new technologies,⁷⁸ thus stifling technological innovation;⁷⁹ while others merely assumed a passive role and only a few authorised its use and trade.⁸⁰

Some states, however, have promulgated new laws to regulate cryptocurrency. For example, Japan's *Payment Services Act 2009*⁸¹ and the US's *Uniform Regulation of Cryptocurrency Businesses Act 2017*⁸² evidence this. In 2014, the USA went even further and categorised cryptocurrency as taxable property.⁸³ The USA has also developed a framework for the regulation of cryptocurrency exchanges.⁸⁴

Canada has also made changes to its AML regulations to manage the new challenges presented by the emergence of cryptocurrencies.⁸⁵ The first notable revision came into force in June 2020. Individuals or companies that trade in the transfer or exchange of virtual currencies must register as a money services business (MSBs).⁸⁶

⁷⁶ CFPB 2014 *Risks to Consumers Posed by Virtual Currencies* https://files.consumerfinance.gov/f/201408_cfpb_consumer-advisory_virtual-currencies.pdf.

⁷⁷ Yuneline 2019 *JABES* 217.

⁷⁸ Blemus 2017 *Corporate Finance and Capital Markets Law Review* 1. For example, in the U.S., the *Securities Act* of 1933 and *Exchange Act* of 1934 are used by the SEC to pursue unregistered securities cases against firms like Ripple and Coinbase, while the CFTC relies on the *Commodity Exchange Act* for derivatives enforcement. The UK's *Financial Services and Markets Act 2000* and *Money Laundering Regulations 2017* empower the FCA to act against unregistered crypto businesses. In the EU, crypto service providers are subject to the 5th Anti-Money Laundering Directive (5AMLD). China enforces bans through directives from the People's Bank of China, while South Korea applies the *Act on Reporting and Use of Certain Financial Transaction Information* to impose strict AML rules.

⁷⁹ Lagarde 2018 *IMF Finance and Development* 10.

⁸⁰ Lee 2016 *Hastings Business Law Journal* 82.

⁸¹ The Law Library of Congress "Regulation of Cryptocurrency in Selected Jurisdictions" 53.

⁸² Sharma 2021 <https://www.investopedia.com/news/bitcoin-has-regulation-problem/>.

⁸³ IRS 2014 <https://www.irs.gov/businesses/small-businesses-self-employed/virtual-currencies>.

⁸⁴ Malviya 2021 <https://m.economictimes.com/markets/cryptocurrency/where-are-bitcoin-cryptocurrencies-legal-and-where-are-they-not/articleshow/82548574.cms>.

⁸⁵ The Canada Gazette 2019 <https://gazette.gc.ca/rp-pr/p2/2019/2019-07-10/html/sor-dors240-eng.html>.

⁸⁶ The Canada Gazette 2020 <https://canadagazette.gc.ca/rp-pr/p2/2020/2020-06-10/html/sor-dors112-eng.html>.

MSBs are categorised as reporting entities with defined AML/CFT compliance obligations.⁸⁷

From June 2021, MSBs must carry out a KYC check when exchanging or transferring virtual currency and report suspicious transactions with virtual currency.⁸⁸ In addition, MSBs will be required to retain and submit transaction records for large transfers of virtual currencies,⁸⁹ as well as conduct ongoing monitoring.⁹⁰ These amendments harmonise AML compliance obligations in relation to fiat currencies and transactions with virtual currencies.

The disparity in these global responses and the imbalance in adapting to new technologies while protecting consumers and the financial system from illicit activity and market failure is indicative of the dilemma facing regulators of cryptocurrency.⁹¹ The biggest problem may be the impact of cryptocurrencies on existing global monetary policy,⁹² which could at least require a change in the regulations and policies of the current financial system.⁹³

In response to this global resistance, cryptocurrency advocates are proposing self-regulation to curb market abuse.⁹⁴ However, this does not appear to be practicable and would require an extensive trial-and-error method.⁹⁵

First of all, due to the decentralised nature of cryptocurrencies, it would take the international community a long time to understand cryptocurrencies and integrate them harmoniously into the existing legal framework.⁹⁶ And when this is achieved, all the practical, technical and theoretical implications of self-regulation must be

⁸⁷ The Canada Gazette 2020 <https://canadagazette.gc.ca/rp-pr/p2/2020/2020-06-10/html/sor-dors112-eng.html>.

⁸⁸ Jones 2021 <https://www.jdsupra.com/legalnews/changes-to-aml-and-virtual-currency-4489995/>.

⁸⁹ FINTRAC 2021 <https://www.fintrac-canafe.gc.ca/guidance-directives/recordkeeping-document/record/msb-eng>.

⁹⁰ FINTRAC 2021 <https://www.fintrac-canafe.gc.ca/guidance-directives/client-clientele/omr-eng>.

⁹¹ Chohan 2017 *SSRN* 2.

⁹² Woodford 2000 <https://www.nber.org/papers/w7853.pdf>.

⁹³ He, Leckow and Others 2017 "Fintech and Financial Services: Initial Considerations"14.

⁹⁴ Keidar and Blemus 2018 *SSRN* 3.

⁹⁵ De Filippi 2014 *Internet Policy Review* 10.

⁹⁶ Sharma 2019 <https://www.investopedia.com/news/should-cryptocurrency-exchanges-selfregulate-themselves/>.

considered to ensure that it responds to market and government failures without stifling innovation through over-regulation.⁹⁷

Despite the above inherent risks and complexities associated with cryptocurrencies, South Africa is only in the early stages of regulating cryptocurrency and does not yet have a comprehensive framework in place to fully address and mitigate these risks.⁹⁸

Prior to the SARB's decision to bring cryptocurrency within the scope of regulation in 2022, it had along with the South African Treasury warned the public about the use of cryptocurrency and the associated risks, namely theft, fraud and unauthorised use, in the absence of a comprehensive legal and regulatory regime for cryptocurrencies.⁹⁹ These authorities had emphasised that the public would have no legal recourse if the aforementioned risks were to materialise in South Africa.¹⁰⁰

On the other hand, the South African Revenue Services had expressed its intention to regulate cryptocurrency by amending relevant provisions of the existing tax law framework to apply to cryptocurrency and their use.¹⁰¹ SARS mandates that taxpayers disclose all income from cryptocurrency transactions as a component of their taxable earnings.¹⁰²

It is evident that cryptocurrency represent a significant development in the financial services sector, although their regulation in South Africa was a grey area until 2022 when a phased regulatory approach was adopted.¹⁰³ It is against this backdrop that

⁹⁷ Larsen Date Unknown <https://www.theirm.org/news/managing-the-risk-of-regulation-how-self-regulation-could-reinvigorate-the-cryptocurrency-boom/>. The article demonstrates that for self-regulation to work, the state supervisory authorities and the self-regulatory organisation must work together to endow the latter with legitimacy. In addition, the financial sector must be supported in the creation of regulations for cryptocurrencies so that the interests of all players in the financial sector are protected. Another important aspect is accountability, where non-compliance with regulations is penalised with sanctions to promote oversight and transparency.

⁹⁸ Nieman 2015 *PEJL* 1988; Reddy and Lawack 2019 *MERC LJ* 18.

⁹⁹ SARB "Position Paper on Virtual Currencies" 10; SANT "User Alert: Monitoring of Virtual Currencies" 4.

¹⁰⁰ SARB "Position Paper on Virtual Currencies" 12.

¹⁰¹ SARS 2018 <http://www.sars.gov.za/Media/MediaReleases/Pages/6-April-2018-SARS-stance-on-the-tax-treatment-of-cryptocurrencies-.aspx>.

¹⁰² Castor 2018 <https://bitcoinmagazine.com/business/south-africans-instructed-pay-tax-bitcoin-and-cryptocurrency-earnings>.

¹⁰³ ENSight Date Unknown <https://www.ensafrica.com/news/detail/6315/crypto-assets-soon-to-be-regulated-in-south-a>.

the study is conducted and aims to make a compelling case for the development of a comprehensive legal and regulatory framework for cryptocurrency. In light of public policy principles, the regulation of cryptocurrency could support consumer protection, the prevention of money laundering, terrorist financing and tax evasion, and the promotion of the integrity of the financial system.¹⁰⁴

Notwithstanding South Africa's regulatory position outlined in the previous paragraphs, the public appears to remain curious about cryptocurrencies - and Bitcoin in particular.¹⁰⁵ In 2015, the first commercial Bitcoin conference was held in Cape Town, South Africa, and several more Bitcoin meetings have been held in Johannesburg over the years.¹⁰⁶ Since then, Bitcoin has received a lot of attention in the South African media.¹⁰⁷

In addition, merchants who accept Bitcoin as a means of payment, Bitcoin exchanges, ATMs and the Bitcoin mining community have supported the growth of Bitcoin worldwide.¹⁰⁸ Proof of this is that two of the best-known cryptocurrency exchanges have been operating in South Africa since 2013.¹⁰⁹ In June 2019, another cryptocurrency exchange opened in South Africa, which is said to have already facilitated millions of ZAR worth of trading since its launch.¹¹⁰

Further, around five to eight Bitcoin ATMs were installed and in operation nationwide in South Africa by the end of 2018.¹¹¹ As of 2025, cryptocurrency adoption in South Africa continues to expand, reflecting both increasing user participation and growing integration into the financial ecosystem. Market penetration is projected to rise from 10.49 per cent in 2025 to 10.77 per cent in 2026, with the number of users expected

¹⁰⁴ IFWG "Position Paper on Crypto Assets" 5.

¹⁰⁵ Nieman 2015 *PEJL* 1992. Per the article, the growing interest and participation in cryptocurrency were the main factors behind the SARB's decision to regulate this innovation. While the paper briefly discusses these recent developments, the main focus is on the data collected prior to the changes introduced in 2022.

¹⁰⁶ Wicht "The Tax Implications of Bitcoin in South Africa" 10.

¹⁰⁷ Several articles on the dynamics of cryptocurrency in South Africa are published regularly on Cointelegraph South Africa, a leading online publisher in the field of virtual currencies.

¹⁰⁸ Ly 2014 *Harv JL & Tech* 591.

¹⁰⁹ Bitcoinzar <https://www.bitcoinzar.co.za/bitcoin-exchanges-in-south-africa/>.

¹¹⁰ Burbidge 2019 <https://www.itweb.co.za/content/kYbe97XxaVX7AWpG>.

¹¹¹ Sources available to the researcher differed on the exact number of Bitcoin ATMs across South Africa. The Bitcoin News 2019 <https://thebitcoinnews.com/bitcoin-atms-in-africa-where-to-find-them-and-how-they-work-2019/>.

to reach 7.05 million by that year.¹¹² In 2024 alone, the number of crypto users in South Africa reportedly increased by 38 per cent, reaching as high as 13.9 million, though this figure likely captures wider engagement indicators beyond unique verified users.¹¹³ Alongside this growth, the average revenue per user in the South African market is estimated at approximately USD 90.7 in 2025.¹¹⁴ More broadly, Sub-Saharan Africa remains a global growth leader, with cryptocurrency users in the region increasing by 19.4 per cent in 2025, driven primarily by activity in Nigeria, Kenya, and South Africa.¹¹⁵

The above paragraphs show that while the future of cryptocurrency in South Africa is unpredictable, their success depends on the willingness of customers and merchants to continue accepting them as a means of payment.¹¹⁶ In an article on places players can use their cryptocurrency, Ryan,¹¹⁷ notes that by 2024, South Africa had an estimated 5.8 million cryptocurrency users, ranking among the top 20 global markets, with adoption increasingly reflected in retail payments, most notably Pick n Pay processing over R1 million per month in crypto transactions for everyday expenses.

He states further that merchants across diverse sectors, from sneakers and jewellery to scooters, travel, cosmetic surgery, and online shopping, have begun accepting crypto payments, supported by fintech innovations such as FiveWest's CoinPay gateway, which enables crypto-to-fiat settlement at lower fees than traditional card systems. This shift highlights both consumer demand for alternative payment methods and merchant interest in reducing costs and broadening accessibility, particularly for foreign visitors who find crypto transactions more efficient than conventional cross-border banking channels.

¹¹² Fakunle 2025 <https://www.disruptionbanking.com/2025/07/24/south-africa-crypto-powerhouse/>; Elena R 2025 <https://coinpedia.org/cryptocurrency-regulation/cryptocurrency-regulation-in-south-africa/>.

¹¹³ Samuel 2025 <https://techpression.com/south-africa-leads-africas-blockchain-with-38-crypto-growth-in-2024/>.

¹¹⁴ Fakunle 2025 <https://www.disruptionbanking.com/2025/07/24/south-africa-crypto-powerhouse/>.

¹¹⁵ Elad and Kinder 2025 <https://coinlaw.io/cryptocurrency-adoption-by-country-statistics/>.

¹¹⁶ Reuben 2012 *Hastings Science & Technology Law Journal* 165-166.

¹¹⁷ Ryan 2024 <https://www.moneyweb.co.za/in-depth/fivewest/the-top-10-places-to-spend-your-crypto-in-sa/>.

It is also clear that the demonstrated interest justifies a legal and regulatory framework for the regulation of cryptocurrencies.¹¹⁸ The more cryptocurrencies are localised, the greater the chance that new challenges will arise.¹¹⁹

Despite growing cryptocurrency adoption in South Africa, the current legal and regulatory framework remains fragmented, reactive, and partially outdated.¹²⁰ While initial steps such as the classification of crypto assets as financial products under *FAIS* and the application of *FICA* compliance have brought some clarity, significant legal and policy gaps persist.¹²¹

As cryptocurrencies become increasingly integrated into the mainstream financial ecosystem, South Africa requires a coherent, future-oriented legal framework that can accommodate innovation while safeguarding the financial system and consumers. There is a clear need for scholarly engagement that goes beyond analysing existing laws and instead formulates targeted legal and regulatory reforms to ensure the country's financial sector is adequately equipped to govern the growing crypto economy.

1.3 Motivation and significance of the study

The 2008 global financial crisis exposed fundamental vulnerabilities in the traditional fiat-based financial system, triggering widespread public distrust in financial institutions and a crisis of legitimacy that persists today.¹²² In response, governments have increasingly turned to protectionist policies to shield domestic economies from external shocks.¹²³ However, such approaches have often proven counterproductive,

¹¹⁸ Proponents for cryptocurrency argues that development and adoption of new cryptocurrency policies and legal framework could potentially support innovation, promote consumer protection and mitigate illicit activities, as well as other potential risks posed by cryptocurrencies.

¹¹⁹ World Economic Forum <https://www.weforum.org/agenda/2021/09/meeting-the-crypto-regulatory-challenge/>.

¹²⁰ Swart et al 2025 <https://www.werksmans.com/legal-updates-and-opinions/cracking-down-or-catching-up-south-africas-approach-to-crypto-regulation-part-2-financial-services-and-fica/>.

¹²¹ FSCA 2021 <https://www.fsca.co.za/TPNL/fsca%20Newsletter2/3.html>.

¹²² Mellor *The future of money: From financial crisis to public resource* 114.

¹²³ Ross 2025 <https://www.investopedia.com/ask/answers/063015/what-are-major-laws-acts-regulating-financial-institutions-were-created-response-2008-financial.asp>.

deepening economic stagnation rather than addressing the systemic flaws at the heart of the global monetary order.¹²⁴

This breakdown in confidence has created space for alternative financial systems to emerge most notably, cryptocurrencies and the blockchain technology that underpins them.¹²⁵ These decentralised technologies offer the potential to reconfigure the financial services landscape by removing reliance on central authorities, increasing transparency, and enhancing transaction security.¹²⁶ Their rapid development and growing adoption signal a broader transformation in how value is stored, transferred, and regulated across borders.¹²⁷

The motivation for this study lies in the urgent need to understand how such technologies can be effectively integrated into the existing financial and legal frameworks, particularly in developing economies such as South Africa. While cryptocurrency use is growing in the country, largely through private-sector adoption, its regulation remains incomplete and evolving. As South Africa becomes increasingly connected to global financial systems, its exposure to the opportunities and risks posed by cryptocurrencies grows accordingly.¹²⁸ Therefore, a forward-looking regulatory approach is necessary to safeguard economic stability while enabling innovation.¹²⁹

This study is significant because it addresses a critical gap in the existing scholarship, that is, the lack of comprehensive, context-specific analysis of cryptocurrency regulation in South Africa, particularly from a legal perspective. By examining how different jurisdictions have approached crypto regulation and identifying best practices, this research aims to propose a model suitable for South Africa's unique legal, economic, and technological environment.

Furthermore, the study contributes to the global discourse on financial regulation in the digital age by offering insights into how regulators can strike a balance between

¹²⁴ Bussiere "Protectionist Responses to the Crisis: Global Trends and Implications" 7.

¹²⁵ Milutinović "Cryptocurrency" 106-107.

¹²⁶ Murry 2025 <https://www.investopedia.com/terms/c/cryptocurrency.asp>.

¹²⁷ McNamara and Marpu <https://arxiv.org/html/2508.11395v1>.

¹²⁸ Ncube and Kabwe 2023 *De Jure Law* 355 - 356.

¹²⁹ Ncube and Kabwe 2023 *De Jure Law* 355 - 356.

fostering innovation and ensuring market integrity. It also responds to the need for adaptable legal frameworks that can keep pace with technological advancement, mitigate systemic risks, and support financial inclusion.

Through its interdisciplinary lens, the research not only strengthens legal understanding but also adds value to ongoing policy debates surrounding the future of money, finance, and digital governance. By doing so, it supports the development of practical, effective strategies for the integration of cryptocurrencies into formal financial systems, both in South Africa and beyond.

1.4 Research question

This thesis attempts to answer the following central research question, which determines and guides the entire study: To what extent can South Africa's existing legal and regulatory framework accommodate and govern the use of cryptocurrencies, and how should it be reformed to ensure their effective and secure integration into the financial sector?

The secondary research questions formulated around the primary research question are:

- a) What are cryptocurrencies, and how do they function within the modern financial ecosystem?
- b) What legal and economic roles do cryptocurrencies play in both traditional and emerging financial systems?
- c) What is the current legal and regulatory position of cryptocurrencies in South Africa, and what limitations or gaps exist within this framework?
- d) To what extent does the existing South African financial regulatory framework accommodate cryptocurrency governance, and where does it fall short?
- e) What legal and regulatory reforms are necessary to create a coherent, effective, and future-oriented framework for cryptocurrency regulation in South Africa?

f) How have selected jurisdictions such as the United States, Canada, and Japan approached the regulation of cryptocurrencies, and what lessons can be drawn from their experiences?

1.5 Research aims and objectives

- a) To analyse South Africa's financial sector regulatory framework and establish the extent to which existing laws apply to cryptocurrencies and their use.
- b) To examine the regulatory approaches adopted in selected international jurisdictions, specifically the United States, Canada, and Japan, with a view to identifying comparative insights and best practices that can inform future legal reform in South Africa.
- c) To explore the potential role of cryptocurrencies in advancing financial inclusion and contributing to the Sustainable Development Goals (SDGs) in sub-Saharan Africa.
- d) To propose a reform-oriented legal and regulatory framework tailored to South Africa's context, aimed at mitigating risks associated with cryptocurrency use while fostering innovation and financial sector growth.
- e) To determine the specific areas of South African law and policy that require augmentation or adaptation to enable the secure, effective, and future-ready integration of cryptocurrencies into the national financial system.

1.6 Premises

This study is premised on the belief that the adoption of a clear, specific, and forward-looking regulatory strategy for cryptocurrencies in South Africa will significantly enhance public trust in the security and legitimacy of cryptocurrency transactions. It also assumes that appropriate regulation will strengthen consumer protection for both users and service providers, while providing safeguards against the misuse of the technology for unlawful purposes. A well-defined regulatory

framework is further expected to foster market stability, innovation, and financial inclusion within the digital asset ecosystem.

1.7 Assumptions

This thesis is based on the following key assumptions:

- a) In the absence of comprehensive regulation and oversight, cryptocurrencies are more susceptible to being exploited for illicit financial activities, such as money laundering, tax evasion, and terrorism financing.
- b) The decentralised nature of cryptocurrencies creates inherent challenges for legal accountability, consumer protection, and financial stability.
- c) Without a regulatory response, the growing adoption of cryptocurrencies may pose systemic risks to South Africa's financial system and potentially undermine the role of fiat currency in domestic transactions.

1.8 Hypotheses

This thesis is premised on the following central hypotheses:

South Africa's current financial sector regulatory framework is insufficient to adequately govern the use of cryptocurrencies, and a robust, purpose-built legal and regulatory framework is necessary to mitigate associated risks and support secure, inclusive, and innovative integration into the national financial system.

Secondary hypotheses include:

- a) Comparative legal analysis of cryptocurrency regulation in jurisdictions such as the United States, Canada, and Japan can inform the development of a more effective regulatory model for South Africa.
- b) Tailored legal reform will enhance consumer protection, reduce financial crime risks, and foster public confidence in cryptocurrency adoption.

- c) Regulatory clarity is a prerequisite for the sustainable development of the cryptocurrency ecosystem within South Africa's financial sector.

1.9 Research method

The researcher will use a qualitative, desk-based research methodology which will rely on the analysis of literature from primary and secondary sources. In particular, national and foreign legislation and relevant foreign case law, journal articles, dissertations, internet sources and government policy papers.

To put the concept of cryptocurrency into context, the researcher will outline the legal and regulatory position of some of the pioneering countries in the cryptocurrency landscape, namely Japan, Canada and the US,¹³⁰ in contrast to that of South Africa. These jurisdictions have been purposefully selected due to their early and robust engagement with cryptocurrency regulation, the maturity of their respective legal responses, and the potential relevance of their experiences to South Africa's evolving regulatory landscape.

Japan, Canada, and the United States each represent advanced economies with distinct yet well-developed approaches to the regulation of crypto-assets. Japan stands out as one of the first countries to enact comprehensive legislation governing cryptocurrency, having introduced its licensing framework for crypto exchanges under the *Payment Services Act* as early as 2017.¹³¹ Its proactive regulatory posture and consistent refinements in response to incidents such as the Mt. Gox and Coincheck hacks offer valuable insights into managing systemic risk while fostering innovation.¹³²

Canada, similarly, has taken an early and balanced approach. It regulates crypto trading platforms primarily through its securities framework and anti-money laundering legislation, while also encouraging innovation through regulatory

¹³⁰ In the US, there is no standardised legal approach at state level. The study therefore focuses on the regulation of cryptocurrencies at federal level, where the development of legislation on cryptocurrencies continues to progress.

¹³¹ Amaya 2022 <https://www.fsa.go.jp/en/news/2022/20221207/01.pdf>.

¹³² Housing Japan 2025 <https://housingjapan.com/blog/the-evolution-of-cryptocurrency-in-japan-and-how-to-diversify/>.

sandboxes and guidance issued by national authorities.¹³³ The United States, although marked by a more fragmented regulatory structure, is home to some of the most influential enforcement practices and legal precedents in the crypto space.¹³⁴ Regulatory activity by the Securities and Exchange Commission (SEC), Commodity Futures Trading Commission (CFTC), and the Financial Crimes Enforcement Network (FinCEN), among others, provide a diverse and evolving body of practice that is highly relevant for comparative analysis.¹³⁵

In selecting these countries, this study prioritises jurisdictions that have adopted concrete, nationally enforceable legal frameworks. This allows for more precise and substantive evaluation of regulatory models that may inform future legal reform in South Africa.

In addition, the selected jurisdictions all share legal, institutional, or economic characteristics that align more closely with South Africa's regulatory environment. Both Canada and the United States, like South Africa, operate within common law systems.¹³⁶ These similarities enhance the comparative value of their regulatory strategies and make them more appropriate benchmarks for the South African context.

With reference to the South African legal framework, the study will examine the *SARB Act* 90 of 1989, *Banks Act* 94 of 1990, *Financial Intelligence Centre Act* 38 of 2001, *Financial Advisory and Intermediary Services Act* 37 of 2002 and the *National Payment System Act* 78 of 1998. These pieces of legislation form part of the financial regulatory framework in South Africa. The study will also make reference to the *Consumer Protection Act* of 2008 as well as the South African tax laws where relevant. Therefore, it is only reasonable to discuss the potential applicability of these existing laws to cryptocurrencies before proposing regulatory reforms.

¹³³ Sanction Scanner 2024 <https://www.sanctionsscanner.com/blog/canada-and-the-u.s.-crypto-regulations-989>.

¹³⁴ Poynton 2023 *Notre Dame Journal on Emerging Technologies* 109.

¹³⁵ Solanki 2025 <https://legal.thomsonreuters.com/blog/cryptocurrency-laws/#how-is-cryptocurrency-regulated>.

¹³⁶ Government of Canada 2021 <https://ppp.worldbank.org/legislation-regulation/framework-assessment/legal-systems/common-vs-civil-law>; Thomson Reuters 2022 <https://legal.thomsonreuters.com/en/insights/articles/what-is-common-law>.

Among the international laws being considered is Japan's *Virtual Currency Act* 2017. Japan has the most advanced and stringent regulatory climate for cryptocurrencies, which helps to reduce the risks associated with cryptocurrencies. The country also recognises cryptocurrencies as legal property,¹³⁷ whose gains can be taxed.¹³⁸ It also regulates the trading and exchange of cryptocurrencies,¹³⁹ this means that cryptocurrencies are subject to supervision comparable to that of conventional financial assets.¹⁴⁰

Moreover, the study will consider the US's *Uniform Regulation of Cryptocurrency Businesses Act* 2017¹⁴¹ as well as Canada's AML/CFT laws such as the amended *Proceeds of Crime (Money Laundering) and Terrorist Financing Act*,¹⁴² its consumer protection laws,¹⁴³ and its taxation laws.¹⁴⁴

The study is limited to cryptocurrency as a means of payment and as a form of investment. The study will also focus on the potential impact of cryptocurrency on the stability and integrity of the financial system and on consumer protection. Because these are areas that are the subject of intense political debate around the world as cryptocurrencies become increasingly linked toward the wider monetary system.

¹³⁷ This is provided for under the *Payment Services Act* 2016.

¹³⁸ Comply Advantage 2019 <https://complyadvantage.com/knowledgebase/crypto-regulations/cryptocurrency-regulations-japan/>. In 2017 the National Tax Agency classified gains on cryptocurrencies as miscellaneous income liable to be taxed.

¹³⁹ The Financial Services Agency, created by the amended *Payment Services Act*, oversees the registration and operation of cryptocurrency exchanges to enable tighter control of cybercrime and the promotion of AML/CFT. To enable the FSA to fulfil its mandate, a self-regulatory organisation - the Japanese Virtual Exchange Association (JVCEA) - was established with a mandate to advise unlicensed cryptocurrency exchanges to ensure regulatory compliance.

¹⁴⁰ Wirex 2019 <https://wirexapp.com/blog/post/cryptocurrency-in-japan-a-regulatory-overview-0159>.

¹⁴¹ *Uniform Regulation of Virtual-Currency Business Act* 1. In 2017, the ULC drafted the *Uniform Regulation of Virtual-Currency Businesses Act* with the intention to provide regulations tailored to virtual-currency businesses to assure users of virtual-currency services and products of protection against cryptocurrency associated risks.

¹⁴² Including the *Criminal Code* 1985, and the *Proceeds of Crime and Terrorist Financing Act Regulations* 2002.

¹⁴³ Namely, the *Ontario Consumer Protection Act* 2002 and the *Quebec Consumer Protection Act* 1971.

¹⁴⁴ Namely, the *Income Tax Act* 1985.

1.10 Thesis outline

This thesis consists of six (6) chapters.

Chapter 1 introduces the research topic, outlines the nature of the research, and maps the overall structure of the thesis.

Chapter 2 delves into the structure and limitations of the current international financial system and traces its evolution over the years.

Chapter 3 addresses how the emergence of cryptocurrency fits within the current financial system.

Chapter 4 examines the South African legal and regulatory approach to the regulation of cryptocurrency.

Chapter 5 provides a comparative analysis of the legal and regulatory approaches of select jurisdictions, namely, Japan, Canada and the United States, to the regulation of cryptocurrency.

Chapter 6 concludes the study and provides a set of recommendations for South Africa's cryptocurrency framework.

CHAPTER 2: THE INDUSTRIAL STRUCTURE AND ORGANISATION OF THE INTERNATIONAL FINANCIAL SYSTEM

2.1 Introduction

The financial crises, especially those related to the global recession of 2008, have triggered discussions on the need to restructure the international monetary system (IMS), as these events have exposed fundamental weaknesses within the IMS.¹⁴⁵ The reason for these discussions is that a reorganisation of the IMS could effectively address the causes and effects of past crises while reducing the likelihood of similar events in the future.¹⁴⁶ The main points of discussion following the 2008 crisis concern financial supervision and regulation, global imbalances and external factors, the importance of reserve currencies and the creation of a more robust international financial system.

This chapter is fundamental to the discussion of this thesis as it sets the scene for Chapter 3 and the following chapters, which call for the reorganisation of the IMS in response to the prevailing global economic realities.¹⁴⁷

In order to formulate an appropriate response, it is important to understand the problems that make restructuring necessary in the first place.¹⁴⁸ To this end, this chapter discusses the historical pillars of a well-functioning monetary system and the impact of the development of globalisation on this system. The chapter concludes by highlighting the main financial crises that have occurred over the years due to gaps in the international monetary system, and links these crises to the changing infrastructure of the monetary system.

¹⁴⁵ Arner 2009 *The International Lawyer* 91.

¹⁴⁶ Arner and Buckley 2010 *Melbourne Journal of International Law* 2.

¹⁴⁷ Makhijani and Browne 1985 *World Policy Journal* 60. The authors opine that weaknesses of the IMS that lead to the occurrence of financial crises make it clear that the system needs to be reconsidered and appropriate solutions found that meet the needs of the various economies in order to prevent the recurrence of crises. In the context of this work, solutions are needed to address the risks to the IMS posed by cryptocurrencies, a new innovation about which little is known and whose future is uncertain. Part of the solution could be to reorganise the IMS to keep pace with today's technological developments, which the current IMS cannot cope with. On implementing an international development strategy Makhijani and Browne 1985 *World Policy Journal* 59, opine that restructuring the international monetary system is necessary for the successful implementation of an international development strategy.

¹⁴⁸ Buckley and Arner 2011 *International Banking and Finance Law Series* 2.

With the above understanding, the hypothesis of this work will be better understood as it is tested in the following chapters.

2.2 The evolution of the international monetary system (IMS)

The international monetary system is a set of rules and standards that apply to countries and their financial institutions. It serves to facilitate international trade between them through the allocation of capital and investment.¹⁴⁹

Due to the increasing complexity of international trade, the IMS is therefore characterised by four elements:¹⁵⁰ standardisation of exchange rates between international currencies in order to promote the participation of individual countries in international trade, improve their balance of payments and reduce the trade deficit;¹⁵¹ the supply of and demand for currency reserves; the international monetary institutions;¹⁵² and facilitation of international capital movements.¹⁵³

The IMS is overseen by a multilateral body, the IMF, one of whose aims is to integrate the global economy.¹⁵⁴ The role of the IMF in the IMS is discussed in detail later in this chapter.

However, the IMF was not always responsible for overseeing the IMS. The IMS has constantly evolved over the years in parallel with changing global realities and economic considerations.¹⁵⁵ Throughout the entire period, the search was always on for an effective system.¹⁵⁶ In the course of this process, the IMS evolved through the

¹⁴⁹ Mohan, Patra and Kapur "The International Monetary System: Where Are We and Where Do We Need to Go?" 4.

¹⁵⁰ Mohan, Patra and Kapur "The International Monetary System: Where are We and Where do we Need to Go?" 4.

¹⁵¹ Ocampo "A Brief History of the International Monetary System since Bretton Woods" 2.

¹⁵² Farhi and Maggiori "A Model of the International Monetary System" 1.

¹⁵³ Mohan, Patra and Kapur "The International Monetary System: Where Are We and Where Do We Need to Go?" 4.

¹⁵⁴ Article I (i) of the Articles of Agreement of the International Monetary Fund (1944). This provision summarises one of the main objectives of the IMF, namely the strengthening of the international monetary system through international monetary cooperation.

¹⁵⁵ Benassy-Quere, Pisani-Ferry and Yongding "Reform of the International Monetary System: Some Concrete Steps" 1.

¹⁵⁶ Mohan, Patra and Kapur "The International Monetary System: Where are We and Where do we Need to Go?" 5.

gold standard and the Bretton Woods system, both of which collapsed and led to the establishment of the current post-Bretton Woods system.¹⁵⁷

The following discussion traces the development of the IMS in detail.

2.2.1 The Gold Standard

The gold standard is a principle adopted by participating countries to peg the value of their currencies to the value of gold and silver.¹⁵⁸ This made it possible to exchange banknotes and bank deposits for these metals free of charge at a fixed price.¹⁵⁹ As a result, paper money became a more convenient means of payment than coins,¹⁶⁰ in the eighteenth and nineteenth centuries.¹⁶¹ As a result, this era was characterised by unprecedented economic growth and comparatively free trade.¹⁶²

However, this system was in limbo during the First World War and failed soon afterwards¹⁶³ when the US decided to suspend the convertibility of gold into banknotes and issue a non-convertible currency instead.¹⁶⁴ The gold standard was later reinstated,¹⁶⁵ only to be suspended again during the banking crisis of 1933¹⁶⁶ which gradually reduced the required gold backing for banknotes due to the devaluation of the dollar.¹⁶⁷ It was not until the 1940s that the standard was

¹⁵⁷ Mohan, Patra and Kapur "The International Monetary System: Where are We and Where do we Need to Go?" 5.

¹⁵⁸ Bordo 1981 *Federal Bank of St. Louis Review* 2.

¹⁵⁹ Bordo Date Unknown <https://www.econlib.org/library/Enc/GoldStandard.html>.

¹⁶⁰ Several conclusions can be drawn from this statement. Firstly, that paper money was more practical and easier to transport than coins, as paper money retains a higher value compared to coins. That is, the equivalent of a single banknote in coins is bulkier and would make it impractical to carry and count the coins to settle the purchase price for high value purchases. Secondly, the cost of printing paper money was seemingly more economical than that of minting coins and thirdly, the public lost confidence in the actual value of the coins due to wear and tear during circulation. Coins would therefore undergo a laborious process of authentication and verification before transactions were finalised, which was of course impractical.

¹⁶¹ D'Arista 2009 *Cambridge Journal of Economics* 635.

¹⁶² Bordo 1981 *Federal Bank of St. Louis Review* 7.

¹⁶³ Bordo "The Gold Standard, Bretton Woods and Other Monetary Regimes: An Historical Appraisal" 24.

¹⁶⁴ D'Arista 2009 *Cambridge Journal of Economics* 635.

¹⁶⁵ Cooper 1982 *Brookings Papers on Economic Activity* 4.

¹⁶⁶ Selgin *Cato Papers on Public Policy* 15.

¹⁶⁷ Elwell "Brief History of the Gold Standard in the United States" 4, 9-10. Elwell reflects that the situation was such that even if the banks were sufficiently solvent, they were unable to honour banknotes due to the influx of customers demanding redemption. Therefore, the demand for silver and gold exceeded the banks' available stocks, leading to regular financial crises that

completely abolished and the US dollar became a fiat currency whose value was no longer dependent on silver or gold backing.¹⁶⁸

Nevertheless, gold and silver continued to be used as a means of payment for international trade and investment until the 1970s, when the link between the dollar and gold was completely severed, signalling the beginning of a pure fiat standard.¹⁶⁹

Although the gold standard ensured long-term price stability, prices were unstable in the short term,¹⁷⁰ because the economies of the participating countries were vulnerable to unavoidable shocks on the gold market,¹⁷¹ due to the limited discretionary power of governments in the use of monetary policy.¹⁷² This, and the cost of producing enough gold to maintain a full gold standard, led to the ultimate demise of this system and necessitated a new system to replace it.¹⁷³

2.2.2 Bretton Woods system

The Bretton Woods system was established in 1944 as a replacement for the gold standard.¹⁷⁴ It promised more currency flexibility and less volatility than the gold standard.¹⁷⁵ Under this system, the participating countries pegged their currencies to the US dollar, which in turn was pegged to gold.¹⁷⁶ At the time, the US had the largest gold reserves in the world, which meant that no other currency had enough gold to replace it. As a result, the US dollar became the world's reserve currency.¹⁷⁷ This increased its value compared to other currencies and its demand rose, although

resulted in the suspension of the convertibility of banknotes, as the value of paper money and metal money was no longer equivalent and therefore neither was a perfect substitute for the other anymore.

¹⁶⁸ D'Arista 2009 *Cambridge Journal of Economics* 635.

¹⁶⁹ Elwell "Brief History of the Gold Standard in the United States" 13. For a discussion on fiat standard, see Chapter 1 section 2.1 footnote 11.

¹⁷⁰ Bordo <https://www.econlib.org/library/Enc1/GoldStandard.html>.

¹⁷¹ Bordo, Dittmar and Gavin "Gold, Fiat Money and Price Stability" 25-26.

¹⁷² Manuel "Rules or Discretion in Monetary Policy: National and International Perspectives" 26.

¹⁷³ Lioudis 2019 <https://www.investopedia.com/ask/answers/09/gold-standard.asp>.

¹⁷⁴ Bordo "The Bretton Woods International Monetary System: An Historical Overview" 10.

¹⁷⁵ Ghizoni 2013 https://www.federalreservehistory.org/essays/bretton_woods_created.

¹⁷⁶ Ghizoni 2013 https://www.federalreservehistory.org/essays/bretton_woods_created.

¹⁷⁷ Best 2020 <https://www.investopedia.com/articles/forex-currencies/092316/how-us-dollar-became-worlds-reserve-currency.asp>.

its value in gold remained the same.¹⁷⁸ This imbalance was to lead to the failure of the Bretton Woods system decades later.¹⁷⁹

At the end of the 1960s, foreign countries began to divest themselves of excessive dollar accumulations as the value of their dollar-denominated assets exceeded the total US gold reserves.¹⁸⁰ This meant that the US was unable to provide the rest of the world with sufficient liquidity to meet the demand for foreign exchange reserves, which entailed the risk that reserves could be exhausted in the long term, inviting a possible speculative attack against the dollar.¹⁸¹

The US was therefore forced to find a solution to maintain liquidity and, at the same time, avoid a possible speculative attack.¹⁸² One solution that was explored was for the US to run a trade deficit in its current account, but that could never work because it would trigger a boomerang effect where the liquidity problem would persist.¹⁸³ An alternative solution could have been to lower the value of the dollar to weaken it relative to other currencies in order to boost exports, reduce trade deficits and lower interest costs on existing government debt. However, as with the first solution, this would be impractical because the other currencies are pegged to the dollar and this measure would have a negative impact on them.¹⁸⁴

Alternatively, the dollar could have been devalued against gold, but since this would have required a larger devaluation, it was difficult to implement without depleting the

¹⁷⁸ Chen 2020 <https://www.investopedia.com/terms/b/brettonwoodsagreement.asp>.

¹⁷⁹ Gomes "The Collapse of Bretton Woods, Exchange-Rate Theories and European Monetary Integration" 263.

¹⁸⁰ IMF https://www.imf.org/external/np/exr/center/mm/eng/mm_sc_03.htm.

¹⁸¹ Triffin "The International Monetary Position of the United States" 2908-2909; IMF "Speculative attacks and currency Crises: The Mexican Experience" 1-2. A speculative attack was described as thus: "The speculative attack model describes how fiscal imbalances can trigger the collapse of a pegged exchange rate system. These imbalances lead to increased domestic lending, gradually depleting foreign exchange reserves. Anticipating that the reserves will be insufficient to sustain the peg, forward-looking investors engage in speculative attacks, betting against the currency. Once reserves fall to a critical threshold, the fixed exchange rate becomes unsustainable, leading to the system's collapse. This collapse typically results in either a sharp devaluation or a transition to a flexible exchange rate system, causing the currency to depreciate significantly."

¹⁸² IMF Date Unknown https://www.imf.org/external/np/exr/center/mm/eng/mm_sc_03.htm.

¹⁸³ Bach "Problems of the International Monetary System and Proposals for Reform 1944-70" 27.

¹⁸⁴ Eichengreen "Global Imbalances and the Lessons of Bretton Woods" 9-10.

gold reserves. Even if it had been implemented, it would only have lowered the exchange rate and done nothing to solve the liquidity problem.¹⁸⁵

Various other options were considered, but none solved the problem, and so the US eventually took defensive measures aimed at preventing a possible speculative attack on the dollar.¹⁸⁶ These included short-term swaps between the central banks of the participating countries and increasing the IMF's lending capacity.¹⁸⁷

Another reason for the strain on the Bretton Woods system was the nature of the parity system itself,¹⁸⁸ even if it took a considerable amount of time for the system to collapse.¹⁸⁹ Since each currency was pegged to the dollar, any country that changed its exchange rate could not peg the rates back to the dollar,¹⁹⁰ which made it more difficult to maintain the international balance of payments.¹⁹¹ As a result, exchange rates eventually became rigid, increasing fears of potential liquidity problems and the risk of a speculative attack.¹⁹²

It is clear that the success of this system depended on the US having and maintaining a stabilising economic policy.¹⁹³ This is obvious, because the system functioned smoothly until the early 1960s,¹⁹⁴ and it was only in the second half of the 1960s that the problems of the system became apparent, when the US displayed destabilising behaviour,¹⁹⁵ such as rising government social spending and growing domestic inflation led to larger deficits. As this behaviour continued, the US lost

¹⁸⁵ Truman "The End of the Bretton Woods International Monetary System" 9-10.

¹⁸⁶ Bordo "The Bretton Woods International Monetary System: An Historical Overview" 58.

¹⁸⁷ Ghosh 2014 *Finance and Development* 51.

¹⁸⁸ De Vries "The Par Value System: An Overview" 40. The par value system is an international monetary framework in which member countries set their exchange rates in relation to the value of gold or the US Dollar, according to mutually agreed terms and conditions.

¹⁸⁹ Katz "The Case for the Par Value System 1971" 1.

¹⁹⁰ Bordo "The Bretton Woods International Monetary System: A Historical Overview" 80. Due to increasing capital mobility, the cost of changing parities was regarded high. As a result, the system transitioned to a pegged exchange rate framework with no flexibility to modify the rates.

¹⁹¹ Buckley and Arner 2012 *International Banking and Finance Law Series* 10.

¹⁹² Irwin "The Missing Bretton Woods Debate Over Flexible Exchange Rates" 1-2.

¹⁹³ Bordo "The Imbalances of the Bretton Woods System 1965 to 1973: US Inflation, The Elephant in the Room" 6.

¹⁹⁴ Martins 2017 *Brazilian Journal of Political Economy* 404.

¹⁹⁵ Schenk 2017 <https://www.elibrary.imf.org/view/IMF01/23159-981513514277/ch04.xml?language=en>.

global confidence and speculative attacks and the devaluation of the dollar were imminent.¹⁹⁶

At the height of this disruptive behaviour, the then President, concerned about the growing imbalance in the balance of payments and the protectionist tendencies of Congress, decided to end the Bretton Woods system.¹⁹⁷ In 1971, the dollar could no longer be exchanged for gold,¹⁹⁸ and from 1973 all currencies pegged to the dollar were allowed to float freely, which led to the general introduction of a market-oriented, freely floating exchange rate system.¹⁹⁹

The advantage of this freedom is that each currency operated in isolation and was therefore not affected by shocks emanating from other countries.²⁰⁰ It also offered countries the opportunity to pursue an independent economic policy that suited their circumstances without affecting external economies.²⁰¹

Nonetheless, despite the Bretton Woods System's failure, the establishment of the *World Bank* and the *International Monetary Fund*, hereafter the WB and the IMF respectively, remain notably some of the key achievements of this system and a pivotal moment in the evolution of the international monetary system in its entirety.²⁰² Following the Great Depression and World War II,²⁰³ leaders of the allied countries,²⁰⁴ the United Kingdom and the US, in particular, believed that overcoming the economic disasters of these crises required a post-war economic order based on

¹⁹⁶ Bordo *The Operation and Demise of the Bretton Woods System: 1958 to 1971* <https://voxeu.org/article/operation-and-demise-bretton-woods-system>.

¹⁹⁷ Ghizoni 2013 *Nixon Ends Convertibility of US Dollars to Gold and Announces Wage/Price Controls* https://www.federalreservehistory.org/essays/gold_convertibility_ends.

¹⁹⁸ United Nations "Systemic Challenges in the International Monetary System" 58.

¹⁹⁹ United Nations "Systemic Challenges in the International Monetary System" 58.

²⁰⁰ Schembri 2019 *The Merits of a Floating Exchange Rate* <https://www.BankforInternationalSettlements.org/review/r190618b.htm>.

²⁰¹ Labonte "Fixed Exchange Rates and Floating Exchange Rates: What Have We Learned?" 4.

²⁰² Hurowitz 2017 https://www.washingtonexaminer.com/weekly-standard/what-we-can-learn-from-bretton-woods?_amp=true.

²⁰³ Federal Reserve History 2013 <https://www.federalreservehistory.org/essays/great-depression>. The great depression is the worldwide economic downturn that existed in the period between 1929 and 1941, preceding the World War II which began in 1939.

²⁰⁴ BBC Date Unknown <https://www.bbc.co.uk/bitesize/topics/zk94jxs/articles/z6vff82>. The great powers of the World War II included Britain, Japan, France, Russia, China and the US.

a multilateral framework that promoted consensual decision-making and international co-operation.²⁰⁵ To this end, the IMF and the WB were established.²⁰⁶

Each of these bodies is briefly described below.

2.2.2.1 History of the WB and the IMF

The WB and the IMF are specialised institutions within the United Nations system.²⁰⁷ They were founded in 1944 as a result of the Bretton Woods Agreement between the Allied countries after the Second World War.²⁰⁸ Under this agreement, the countries committed themselves to creating a framework for economic cooperation and development²⁰⁹ which would ultimately lead to global economic stability and growth.²¹⁰ The IMF was established to oversee the international monetary system, encourage currency convertibility, and provide short-term financial assistance to countries with balance of payments problems, while the World Bank, initially the International Bank for Reconstruction and Development, was created to support post-war reconstruction before shifting its focus to development. To this end, the World Bank and the IMF pursue the common goal of raising the standard of living in their member countries through a complementary approach.²¹¹

On the one hand, the WB focuses on long-term economic development and poverty reduction.²¹² It achieves this by offering its member states technical and financial assistance to support them in sectoral reforms or the implementation of specific projects.²¹³ Over time, this role has expanded to include advisory services, institutional capacity building, and thematic priorities such as climate change, education, healthcare, and infrastructure. On the other hand, the IMF focuses on macroeconomic issues with the aim of strengthening and maintaining strong

²⁰⁵ Ghizoni 2013 https://www.federalreservehistory.org/essays/bretton_woods_created.

²⁰⁶ Kwagyang, Ghide and Haruna 2015 *Journal of Law, Policy and Globalization* 50.

²⁰⁷ IMF 2020 <https://www.imf.org/en/About/Factsheets/Sheets/2016/07/27/15/31/IMF-World-Bank>.

²⁰⁸ Federal Reserve History 2013 https://www.federalreservehistory.org/essays/bretton_woods_launched; Federal Reserve History 2013 https://www.federalreservehistory.org/essays/bretton_woods_created.

²⁰⁹ Dammasch "The System of Bretton Woods: A Lesson from History" 5.

²¹⁰ Bordo "The Operation and Demise of the Bretton Woods System: 1958-1971" 3.

²¹¹ IMF 2020 <https://www.imf.org/en/About/Factsheets/Sheets/2016/07/27/15/31/IMF-World-Bank>.

²¹² World Bank Date Unknown <https://www.worldbank.org/en/about/history>.

²¹³ Driscoll 1996 <https://www.imf.org/external/pubs/ft/exrp/differ/differ.htm>.

economies.²¹⁴ It achieves this by promoting international monetary co-operation, providing economic and financial policy guidance and supporting its member countries in capacity building.²¹⁵ The IMF also provides financial support through lending programs to countries facing economic crises, often accompanied by reform conditions.

Despite their different mandates, the WB and the IMF work together on tasks that are important to both.²¹⁶ This overlapping of competences is evident in cases where the mandate of one institution in certain circumstances influences the decision on the course of action of the other institution in the same circumstances.²¹⁷ An example of this collaboration is the Financial Sector Assessment Program (FSAP), jointly conducted by the two institutions to evaluate the soundness and stability of national financial systems.

Together, these institutions continue to work to support member states in achieving the Sustainable Development Goals,²¹⁸ and the maintenance of stable and well-regulated financial sectors that function within a centralised international monetary system.²¹⁹ Both institutions have outlived the agreement and the system that created them,²²⁰ and are constantly evolving in response to the new economic environment,²²¹ as discussed below. In particular, their engagement has grown in response to emerging global challenges such as digital financial innovation, financial inclusion, debt sustainability, and climate-related financial risks.

²¹⁴ United Nations "Systemic Challenges in the International Monetary System" 55.

²¹⁵ Investopedia 2019 <https://www.investopedia.com/ask/answers/051415/how-does-international-monetary-fund-function.asp>.

²¹⁶ International Monetary Fund 2020 <https://www.imf.org/en/About/Factsheets/Sheets/2016/07/27/15/31/IMF-World-Bank>.

²¹⁷ International Monetary Fund 2020 *The IMF and the World Bank* <https://www.imf.org/en/About/Factsheets/Sheets/2016/07/27/15/31/IMF-World-Bank>.

²¹⁸ World Bank *Global Monitoring Report* <https://www.worldbank.org/en/publication/global-monitoring-report>. Both the IMF and the WB have committed to supporting countries achieve their SDGs and collaboratively publish the annual *Global Monitoring Report* that tracks global progress towards the SDGs and indicates what hindrances exist in their attainment, as well as how to remedy them.

²¹⁹ IMF 2020 <https://www.imf.org/external/np/fsap/fssa.aspx>. According to the IMF the FSAP monitors the strengths and weaknesses of financial systems and makes recommendations for appropriate policy changes. Although this is an IMF initiative, the World Bank is also involved when it comes to developing countries and emerging economies.

²²⁰ Chen 2020 <https://www.investopedia.com/terms/b/brettonwoodsagreement.asp>.

²²¹ Malan "Report of the External Review Committee on Bank-Fund Collaboration" 15.

2.2.3 *The new international monetary system infrastructure: 1998-2008*

Since the collapse of the Bretton Woods financial system, the financial landscape had changed fundamentally by the early 1990s due to liberalisation, globalisation and technological development.²²² As the decade progressed, financial crises recurred and it became clear that a new international financial infrastructure was needed to address the causes of these crises and prevent future crises.²²³

The financial crises in Mexico and Asia are examples of this. In 1994, Mexico devalued its legal tender and raised its cost of borrowing to minimise the risk of capital flight.²²⁴ This led to economic instability, which also affected neighbouring Latin American countries, whose currencies subsequently lost value.²²⁵ Not only did foreign capital flee Mexico during the crisis, but it also led to financial contagion in the emerging markets.²²⁶ Even more worrying about the devaluation was the fact that companies and governments that had debts in dollars ran the risk of not being able to repay these debts.²²⁷

In response, the USA granted Mexico financial aid in return for the country introducing stricter fiscal and monetary controls.²²⁸ After this crisis, Mexico experienced a recession and hyperinflation²²⁹ which drove the country into extreme poverty for the rest of the 1990s.²³⁰

Another notable financial crisis is the Asian financial crisis. Prior to the crisis, the affected countries had relaxed controls over their domestic financial institutions and

²²² Grais and Kantur "The Changing Financial Landscape: Opportunities and Challenges for the Middle East and North Africa" 5, 14.

²²³ Hernandez "On the debate towards a new International Financial Architecture: Where do we Stand?" 4.

²²⁴ Chen 2018 <https://www.investopeia.com/terms/t/tequilaeffect.asp>.

²²⁵ Crespo "The Mexican Crisis of '94: The Tequila Effect" 2.

²²⁶ Boughton "Tequila Hangover: The Mexican Peso Crisis and Its Aftermath" 488-489; Mathur et al 2002 *The Financial Review* 21. Financial contagion is when market disruptions or the economic effects of a crisis in one market or economy trigger a domino effect, whereby the effects of such disruptions can also be observed in other markets or economies due to the interconnectedness of the markets.

²²⁷ Arner 1996 *Law and Business Review of the Americas* 45-46.

²²⁸ Doyle, Scott and Crimmins "Was the Tequila Effect Rational?" 4.

²²⁹ Aldo "Mexico's Financial Crisis of 1994-1995" 19.

²³⁰ Chen 2018 <https://www.investopeia.com/terms/t/tequilaeffect.asp>.

international capital mobility.²³¹ As a result, their economies were intertwined with the global capital market in the 1990s, making it difficult for countries to make important policy decisions without first considering the disconnect between their actions and the global conditions prevailing at the time.²³² In the period preceding the crisis, the affected economies had experienced substantial short-term capital influx of foreign currency into their financial sectors, which led to an increase in the ratio of foreign debt to foreign exchange reserves.²³³

In 1997, the mood on the markets changed and economies were hit by rapid capital outflows and the resulting currency devaluation.²³⁴ Due to the sudden outflow of capital, the Thai government decided in 1997 to float the Thai baht, which had previously been pegged to the US dollar - a move that would later mark the beginning of the Asian financial crisis,²³⁵ and contagion in Thailand, Indonesia and Korea, and finally the global economy.²³⁶ Shortly after the devaluation of the Thai baht, the currencies of these economies also began to depreciate rapidly.²³⁷ At a later stage, China was also affected, albeit not for long, as the authorities were able to limit the impact by implementing unconventional policies.²³⁸

²³¹ Asian Development Bank "Institute Reform of the International Financial Architecture: An Asian Perspective" 2.

²³² Obstfeld and Taylor *Global Capital Markets: Integration, Crisis and Growth* 34.

²³³ Asian Development Bank Institute "Designing a Financial Market Structure in Post-Crisis Asia: How to Develop Corporate Bond Markets" 5.

²³⁴ Asian Development Bank Institute "Designing a Financial Market Structure in Post-Crisis Asia: How to Develop Corporate Bond Markets" 6.

²³⁵ Bello 2007 *Journal of the Asia Pacific Economy* 39-40.

²³⁶ Buckley, Avgouleas and Arner "Three Major Financial Crisis: What Have We Learned?" 2.

²³⁷ Soedradjad "Causes and Implications of the Asian Crisis: An Indonesian View" 115.

²³⁸ Sharma 2002 *Brazilian Journal of Political Economy* 225-227. Most notably, Chinese authorities chose to maintain a fixed exchange rate and resisted pressure to devalue the renminbi (RMB), which helped stabilise trade expectations and avoid a cycle of competitive devaluations in the region. In addition, China's strict capital controls played a critical role in insulating its economy from volatile capital flows and speculative attacks that destabilised other regional markets. The government also adopted an aggressive counter-cyclical stance by increasing public investment and instructing state-owned banks to expand credit, particularly for infrastructure and development projects. These fiscal and administrative interventions helped sustain domestic demand and reinforce economic confidence. Furthermore, although broader banking sector reforms were not immediate, efforts to address non-performing loans and recapitalise state-owned financial institutions laid the foundation for future financial stability. Collectively, these actions allowed China to weather the Asian Financial Crisis with limited disruption and underscored the strategic role of targeted state intervention in crisis management.

The economies affected by the crisis mentioned above all have the same structural weaknesses at home.²³⁹ The regulation and supervision of domestic financial institutions was inadequate, allowing these institutions to borrow too much from abroad and lend to domestic companies that were not creditworthy, which subsequently led to market bubbles in many economies.²⁴⁰ Financial institutions and domestic companies therefore faced balance sheet challenges after the bubble burst.²⁴¹ This deterioration of the financial sector and the distress of the corporate sector were overall the outcome of exchanges between the globalisation of the monetary sector and internal systemic vulnerabilities.²⁴² The distress was exacerbated by the resulting currency devaluation, rising cost of borrowing and fiscal constraints caused by market forces and IMF-mandated policy changes, leading to a steep decline in economic activity in 1998.²⁴³

After the crisis, however, the affected countries improved their economic conditions and subsequently experienced sustainable growth as a result.²⁴⁴

²³⁹ Barnes, Mansoor, et al "The IMF and Recent Capital Account Crises" 1.

²⁴⁰ Asian Development Bank Institute Reform of the International Financial Architecture: An Asian Perspective 2-3.

²⁴¹ Asian Development Bank Institute "Reform of the International Financial Architecture: An Asian Perspective" 3.

²⁴² Asian Development Bank "Causes of the 1997 Asian Financial Crisis: What Can an Early Warning System Model Tell Us?" 1-2.

²⁴³ Asian Development Bank Institute "Reform of the International Financial Architecture: An Asian Perspective" 3. The IMF-mandated policy responses during the Asian Financial Crisis required affected countries to implement a series of fiscal, monetary, and structural adjustments as conditions for receiving financial assistance. These included stringent fiscal austerity measures, such as reductions in government spending and increases in taxation, aimed at narrowing budget deficits and restoring investor confidence. However, these measures often suppressed domestic demand and deepened economic contraction. At the same time, countries were required to adopt tight monetary policies, particularly by raising interest rates to stabilize their currencies and prevent capital flight. While this approach helped contain exchange rate volatility, it significantly increased the cost of borrowing, exacerbated corporate debt burdens, and led to a rise in bankruptcies. The IMF also called for rapid restructuring of financial sectors through the closure of insolvent banks and the recapitalisation of those deemed viable, which resulted in credit tightening and worsened financial distress. In addition, member states were encouraged to liberalise capital and trade accounts, exposing already fragile economies to further external shocks. Structural reforms were also mandated to improve corporate governance, enhance financial transparency, and accelerate the privatisation of state-owned enterprises. Although some of these measures may have been beneficial in the long term, they offered little short-term relief and, in many cases, intensified the economic downturn. Collectively, these policies contributed to a steep decline in economic activity in 1998 and compounded the balance sheet vulnerabilities faced by financial institutions and domestic firms.

²⁴⁴ World Bank "Responding to the East Asian Crisis" 101-102.

After these crises, the World Bank and the IMF worked together to prevent future events and mitigate the impact of the crises on member countries' development, focusing more on building domestic financial systems,²⁴⁵ as well as financial resources.²⁴⁶

When the above measures alone proved ineffective, the need for additional measures became clear. The WB was therefore tasked with providing technical assistance to member countries wishing to improve the stability of their financial system.²⁴⁷ The basic idea was that strong financial systems are less likely to get into a crisis and are more resilient in times of economic turmoil.²⁴⁸

Nevertheless, each member state retained the responsibility to take and implement measures that would strengthen its own financial system with the help of regional and international financial institutions. These would then be monitored at international level by international institutions and organisations.

Following these changes, many developing countries experienced a boom, with the years 2002 to 2007 being celebrated as one of the periods with the highest growth rates in history.²⁴⁹

2.2.4 The new international monetary system infrastructure: 2007-2010

In 2008, there was another financial crisis and the global economy experienced its first recession since the Second World War.²⁵⁰ What began as a seemingly isolated instability on the United States property sector plunged into a complete recession by

²⁴⁵ Arner and Buckley 2010 *Melbourne Journal of International Law* 16.

²⁴⁶ Das "Asian Crisis: Distilling Critical Lessons" 21.

²⁴⁷ Bank for International Settlements "G10 Strategy on Financial Stability in Emerging Markets Economies" 49.

²⁴⁸ Arner and Buckley 2010 *Melbourne Journal of International Law* 17.

²⁴⁹ Arteta and Kasyanenko "Financial Market Developments" 161. Some economists have dubbed this era the 'Platinum age'. See Garnaut and Huang "Mature Chinese growth leads the global Platinum Age" 9.

²⁵⁰ Koh and Yu "Macroeconomic Developments" 119.

late 2007,²⁵¹ which reveals the fact that the global economy was not as stable as the world had believed in the decades before the crisis.²⁵²

In hindsight, the boom of 2002-2007 was indeed unsustainable and triggered increased optimism among investors, which led to an underestimation of risk, contributing to global complacency.²⁵³ As a result, the first signs of a global recession were only recognised after the outbreak of the crisis.²⁵⁴ Post-mortem analyses later revealed that the events in the US at the time, global imbalances, loose monetary policy, lax financial regulation and misperception of risk were key, interlinked factors that triggered the crisis.²⁵⁵

As the crisis spread, it left behind a scourge of unemployment and poverty,²⁵⁶ with some countries being more affected than others, depending on their individual economic and fiscal status and degree of exposure to the crisis through different channels.²⁵⁷ Thus, African economies were primarily influenced by stock markets, capital flows, exchange rates and trade and commodity prices.²⁵⁸ This leads to an erosion of gains in the collective economic performance of the region and to a decline in economic activity.²⁵⁹

The most important interrelated factors for the global recession of 2008 are discussed below.

2.2.4.1 Loose monetary policies and global imbalances

Global imbalances are a global economic phenomenon in which countries, usually industrialised countries, have excessive current account deficits compared to other

²⁵¹ Verick and Islam "The Great Recession of 2008-2009: Causes, Consequences and Policy Responses" 3.

²⁵² Vieira "Global Development Trends at the Turn of the Century" 2.

²⁵³ Verick and Islam "The Great Recession of 2008-2009: Causes, Consequences and Policy Responses" 8-9.

²⁵⁴ Verick and Islam "The Great Recession of 2008-2009: Causes, Consequences and Policy Responses" 12.

²⁵⁵ Mohan "Global Financial Crisis: Causes, Impact, Policy Responses and Lessons" 1-2.

²⁵⁶ IMF 2010 <https://www.imf.org/en/News/Articles/2015/09/28/04/53/sonew090210a>.

²⁵⁷ Berkman, Gelos and Rennhack "The Global Financial Crisis: Explaining Cross-Country Differences in the Output Impact" 3.

²⁵⁸ Allen and Giovannetti 2011 *Review of Development Finance* 5-6, 20.

²⁵⁹ Arief, Weiss and Jones "The Global Economic Crisis: Impact on Sub-Saharan Africa and Global Policy Responses" 1.

countries, usually developing countries, with excessive current account surpluses.²⁶⁰ The reasons why deficits and surpluses arise are manifold and can be either negative or positive.²⁶¹

Deficits can be caused, among other things, by lax financial regulation that favours credit booms,²⁶² and a poor national budget policy that leads to a decline in the government savings rate.²⁶³ Deficits can also arise for reasons that can benefit governments. For example, when export prices are temporarily low,²⁶⁴ imports are cheaper than the cost of producing local exports, which increases the purchasing power of local consumers and gives them access to the international market, thereby growing the economy.²⁶⁵

On the other hand, surpluses are generally not viewed with the same negativity and are more sustainable than deficits, but they also arise for various reasons.²⁶⁶ Some of the good reasons for the emergence of trade surpluses are, first, a country's high savings rate in foreign assets that can realise international capital gains. Second, an export-led growth strategy, where countries with strong export performance sell their exports in large quantities and at competitive prices in international markets.²⁶⁷ Conversely, trade surpluses can arise when governments fail to prioritise resources for development efforts and instead focus on accumulating foreign exchange reserves.²⁶⁸ In addition, increased private saving may reduce domestic consumption, which could increase investment in foreign assets, which in turn would contribute to potential trade surpluses.²⁶⁹

²⁶⁰ Altuzarra, Ferreiro, and Serrano 2010 *Journal of Innovation Economics* 27.

²⁶¹ IMF "Why Should Current Account Balances Be Reduced?" 5.

²⁶² IMF "Why Should Current Account Balances Be Reduced?" 5.

²⁶³ IMF "Why Should Current Account Balances Be Reduced?" 5. Government savings play a vital role in the financial stability and economic health of a country by enabling governments to fulfil all their obligations, present and future, without getting into excessive debt.

²⁶⁴ It is important to emphasise that low export prices are only advantageous if they are temporary. Persistently low export prices are not sustainable in the long term and lead to lower profit margins, long-term damage to the image of domestic exporters and financial losses for exporters.

²⁶⁵ IMF "Why Should Current Account Balances Be Reduced?" 5.

²⁶⁶ IMF "Why Should Current Account Balances Be Reduced?" 6.

²⁶⁷ IMF "Why Should Current Account Balances Be Reduced?" 5.

²⁶⁸ IMF "Why Should Current Account Balances Be Reduced?" 6.

²⁶⁹ IMF "Why Should Current Account Balances Be Reduced?" 6.

Regardless of how and why these trade imbalances arise, if they become too large, they pose risks for individual countries and the global economy as a whole.²⁷⁰ If economies borrow too much from abroad to finance their government spending, this can lead to larger current account deficits. This risks creating bottlenecks in capital flows as a result of sudden capital outflows from abroad, which could not only destabilise the country in question but also have far-reaching consequences for the global economy and potentially lead to financial crises.²⁷¹ Excessive surplus economies face their own challenges. Excessive investment abroad could lead to lower returns than if a similar investment were made at home.²⁷² These economies also run the risk of their competitors abroad applying protectionist trade policies against them.²⁷³

Due to the risks mentioned above, deficit countries are apparently under greater pressure to balance their accounts than their counterparts from surplus countries.²⁷⁴ However, this does not mean that it is not equally important for surplus countries to balance their accounts.²⁷⁵ As creditors, the surplus countries also stand to lose from debt adjustments.²⁷⁶ It is therefore important that deficit and surplus countries work together to reduce excessive global imbalances.²⁷⁷ These efforts could contribute to financial growth and stability.²⁷⁸

The undesirable consequences of global imbalances for the global crisis of 2008 are discussed below.

²⁷⁰ IMF "Why Should Current Account Balances Be Reduced?" 7.

²⁷¹ Altuzarra, Ferreiro, and Serrano 2010 *Journal of Innovation Economics* 26.

²⁷² Altuzarra, Ferreiro, and Serrano 2010 *Journal of Innovation Economics* 26.

²⁷³ Altuzarra, Ferreiro, and Serrano 2010 *Journal of Innovation Economics* 26.

²⁷⁴ Obstfeld 2018 <https://www.imf.org/en/Blogs/Articles/2018/07/24/blog-addressing-global-imbalances-requires-cooperation>.

²⁷⁵ Obstfeld 2018 <https://www.imf.org/en/Blogs/Articles/2018/07/24/blog-addressing-global-imbalances-requires-cooperation>.

²⁷⁶ Obstfeld 2018 <https://www.imf.org/en/Blogs/Articles/2018/07/24/blog-addressing-global-imbalances-requires-cooperation>.

²⁷⁷ Obstfeld 2018 <https://www.imf.org/en/Blogs/Articles/2018/07/24/blog-addressing-global-imbalances-requires-cooperation>.

²⁷⁸ Obstfeld 2018 <https://www.imf.org/en/Blogs/Articles/2018/07/24/blog-addressing-global-imbalances-requires-cooperation>.

The US's role in shaping the global recession of 2008 is an important one. After the dot.com bubble burst, the US experienced a mild recession in 2001.²⁷⁹ In response to the economic impact of this recession, interest rates were cut excessively to mitigate it,²⁸⁰ and thus led to a debt-financed consumption boom that increased global demand.²⁸¹ Aside from the extremely low interest rates, monetary policy was loosened overall during this period, which favoured a rapid increase in mortgage loans, including for subprime borrowers.²⁸²

In 2001, Japan pursued a similar policy, cutting interest rates to 0% to stimulate economic activity and manage the recovery after the crises of the 1990s.²⁸³ This led to the yen being borrowed at low cost and invested in higher-yielding assets such as US bonds.²⁸⁴ Consequently, the US financial system had a constant flow of money from Japan at the time, which contributed to the housing bubble in the US.²⁸⁵

The Middle East and China also capitalised on this period by holding large foreign exchange reserves in US dollar-denominated assets, extending the life of the low interest rate environment in the US.²⁸⁶ This led to global imbalances that resulted in the US running a large current account deficit, while the Middle East and China ran a

²⁷⁹ Brunnermeier and Schnabel "Bubbles and Central Banks: Historical Perspectives" 13.

²⁸⁰ Keeley and Love "From Crisis to Recovery: The Causes, Course and Consequences of the Great Recession" 20.

²⁸¹ Keeley and Love "From Crisis to Recovery: The Causes, Course and Consequences of the Great Recession" 20.

²⁸² Kenton 2020 <https://www.investopedia.com/terms/s/subprime-meltdown.asp>. During this period, Kenton writes that borrowers with weak credit scores, that is, the economically vulnerable individuals who were unlikely to repay their loans were granted loans on the basis of paying higher interest rates compared to those with healthy credit scores. The economy was therefore submerged in cheap credit, thus creating a bubble that would soon burst due to amongst others, default in payments and extension of loan periods. This was exacerbated by the financial institutions' failure to regulate and manage the influx of credit flows.

²⁸³ Nath 2020 <https://www.investopedia.com/articles/investing/031815/what-zero-interest-rate-policy-zirp.asp>.

²⁸⁴ Farooqui "The Yen/Dollar Carry Trade: Carrying the UIP Condition Too Far?" 3; Amadeo 2019 <https://www.thebalance.com/yen-carry-trade-explained-pros-cons-how-it-is-today-3305971>. This type of investment is known as a carry trade. Investors borrow foreign currency from countries with low interest rates and invest it in high-yielding assets in countries with high interest rates. The Japanese yen has created a favourable environment for borrowing over the years as it has maintained a zero interest rate for many years, while the higher yielding assets in the US have been the ideal target for yen investments.

²⁸⁵ Hattori and Song Shin "Yen Carry Trade and the Subprime Crisis" 408.

²⁸⁶ Yueh 2013 *Procedia Social and Behavioral Sciences* 32.

surplus,²⁸⁷ which could expose the US to a reversal of capital flows and the final collapse of the dollar.

Even if it cannot be said that the imbalances were the sole cause of the 2008 crisis, they definitely contributed to the property bubble and the credit boom, which were constitutive elements of the crisis.²⁸⁸ This is because investments in US companies and mortgage debt were financed directly by foreign loans, which fuelled credit growth despite the US began restricting its financial policy in 2004.²⁸⁹

2.2.4.2 Inaccurate risk assessment and inadequate financial controls

The combination of reduced borrowing rates and returns in the US, lax financial regulation and misperceptions of risk encouraged investors to look for alternative ways to realise higher returns.²⁹⁰ An example of this is the fact that lenders extended their services to borrowers with low credit ratings who would not have been categorised as creditworthy under normal regulatory requirements.²⁹¹ This was exacerbated by the political goals of the time to increase home ownership in low-income communities.²⁹²

As a result, there was an aggressive influx of lenders, which led to a rapid increase in subprime loans and thus to a property bubble.²⁹³ This would later trigger the subprime crisis in the US and the general global economic crisis at the end of the low-interest era.²⁹⁴ This exposes US lenders, banks and other investors around the world to the risk of repayment defaults.²⁹⁵

Due to the complexity of collateral debt obligations and credit default swaps, financial institutions did not know the extent of their risk, so they resorted to

²⁸⁷ Yueh 2013 *Procedia Social and Behavioral Sciences* 33-34.

²⁸⁸ Lin and Treichel "The Unexpected Global Financial Crisis: Researching its root cause" 49.

²⁸⁹ Yueh 2013 *Procedia Social and Behavioral Sciences* 33.

²⁹⁰ Verick and Islam "The Great Recession of 2008-2009: Causes, Consequences and Policy Responses" 19.

²⁹¹ Roetheli 2010 *Journal of Socio-Economics* 2.

²⁹² Roetheli 2010 *Journal of Socio-Economics* 2.

²⁹³ Baily, Litan and Johnson "The Origins of the Financial Crisis" 7.

²⁹⁴ Coghlan, Mccorkell and Hinkley 2018 <https://irle.berkeley.edu/what-really-caused-the-great-recession/>.

²⁹⁵ Taylor "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong" 10-11.

hoarding liquidity in mid-2007. This was the beginning of the credit crisis, which eventually spread worldwide and led to a recession.²⁹⁶ Although the effects of the crisis were generally severe, they were not the same in all countries. Some countries suffered the most, while others were more resilient, depending on their individual starting conditions and exposure.²⁹⁷ Despite the extent of the impact on individual countries, the period was generally characterised by increasing poverty and unemployment.

A detailed discussion of the transnational contagion effects and the most important transmission channels of the crisis from industrialised countries to developing countries is discussed below.

In some regions, such as Latin America, which had experienced rapid growth in remittances at the beginning of the decade, there was a demonstrable decline in remittances in 2007 and 2008, which had a negative impact on the region's GDP in both years.²⁹⁸ In contrast to other economies in the region, this decline hit Mexico the hardest, as most low-income families there rely heavily on remittances from the US.²⁹⁹ The decline was attributed to recessionary labour market conditions in the US during the recession, which made it difficult for immigrant workers to find and secure employment, negatively impacting remittance flows to Mexico.³⁰⁰

While the impact on remittances in developing countries was significant, they proved more resilient later in the decade and were therefore not a major transmission channel for the recession.³⁰¹

Private capital flows were another important channel for the transmission of the crisis from the industrialised countries to the developing countries.

²⁹⁶ Berrospide "Bank Liquidity Hoarding and the Financial Crisis: An Empirical Evaluation" 2; Brunnermeier 2009 *Journal of Economic Perspectives* 95.

²⁹⁷ Viswanathan 2010 *Journal of International Business and Law* 6.

²⁹⁸ Griffith-Jones, Ocampo and Antonio "The Financial Crisis and its Impact on Developing Countries" 4.

²⁹⁹ Sidaoui, Ramos-Francia and Cuadra "The Global Financial Crisis and Policy Responses in Mexico" 285.

³⁰⁰ Sidaoui, Ramos-Francia and Cuadra "The Global Financial Crisis and Policy Responses in Mexico" 285.

³⁰¹ Griffith Jones, Ocampo and Antonio "The Financial Crisis and its Impact on Developing Countries" 5.

2.2.4.3 Policy responses to the 2008 global recession

In order to contain future crises, the world's most advanced economies agreed on international economic coordination in November 2008 with the aim of reforming financial regulation.³⁰² These reforms were guided by five principles - each with a corresponding action plan in several phases³⁰³ and assigned working group,³⁰⁴ support the principles of increasing transparency and accountability, strengthening sound regulation, improving the integrity of financial markets, enhancing international co-operation and restructuring the financial architecture.³⁰⁵

Over the course of 2009 and 2010, the G20 held several summits on various topics and adopted new pillars and principles that consolidate the original principles and agendas.³⁰⁶ In short, over the years, they have enabled the IMF, WB and other MDBs to increase their lending and promote open trade to spur economic growth and development.³⁰⁷

Although the 2008 crisis originated in the US and its effects caused severe hardship for the world's most advanced countries, developing countries also responded to mitigate the impact of the crisis on their economies. This was particularly important because the G20's response to the crisis was focused on industrialised countries and did not fully reach developing countries.

³⁰² Nakao "Response to the Global Financial Crisis and Future Policy Challenges" 2-3; <https://fas.org/sgp/crs/row/R40977.pdf>. "These advanced economies were the Group of 7 namely Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The Group of 20 also became known during the 2008 global recession and included the Group of 7 countries mentioned above as well as Argentina, China, Brazil, France, Australia, India, Germany, Mexico, Indonesia, Saudi Arabia, Russia, South Africa, Turkey, South Korea and the European Union. The heads of state and government of the Group of 7 and the Group of 20 meet annually to discuss topics such as international economic and financial issues and foreign policy."

³⁰³ G20 "Declaration Summit On Financial Markets and The World Economy" 3; G20 "Declaration Summit On Financial Markets and The World Economy: Action Plan to Implement Principles for Reform" 1.

³⁰⁴ There were four working groups established overall, each with a unique mandate. See G20 "Recommendations for G-20 Working Group 1: Enhancing Sound Regulation and Strengthening Transparency"; G20 "G20 Working Group 2: Reinforcing International Cooperation and Promoting Integrity in Financial Markets"; G20 "G20 Working Group 3: Reform of the IMF"; and G20 "G20 Working Group 4: The World Bank and other Multilateral Development Banks".

³⁰⁵ G20 "G20 Declaration Summit on Financial Markets and the Word Economy" 3.

³⁰⁶ Arner and Buckley 2010 *Melbourne Journal of International Law* 33.

³⁰⁷ Arner and Buckley 2010 *Melbourne Journal of International Law* 34.

An example of this is Africa, which has decided to take responsibility for its own response at both national and regional level.³⁰⁸ At national level and depending on the resources available and the vulnerability to the crisis, African countries have taken measures aimed at lowering interest rates, recapitalising banks, injecting liquidity into strategic sectors and promoting trade and fiscal policies to boost economic growth.³⁰⁹

A regional response was also undertaken to mitigate the effects of the crisis. This included the establishment of a committee of finance ministers and central bank governors to monitor the crisis and its impact on the continent.³¹⁰ The Committee also ensured that Africa's position on the crisis and the restructuring of the international financial architecture was expressed.³¹¹ Institutions such as the African Development Bank also played a central role in the response to the crisis. They provided African countries with better access to long-term loans and thus encouraged the flow of resources at a time when foreign funds were scarce.³¹²

2.3 Restructuring the international financial architecture

Against this background, the need to develop a system of financial regulation to avert risks similar to those of the financial crises has never been more evident than in the recurrence of these crises.

It took the recent financial crisis to catalyse the ongoing reforms of the current international financial infrastructure to meet the needs of the 21st century, in the hope of avoiding future crises.³¹³ To this end, countries are slowly refocussing on the

³⁰⁸ Osakwe "Africa and the Global Financial and Economic Crisis" 217.

³⁰⁹ Osakwe "Africa and the Global Financial and Economic Crisis" 217.

³¹⁰ AfDB 2009 <https://www.afdb.org/en/news-and-events/african-response-to-the-global-financial-crisis-4258>.

³¹¹ AfDB <https://www.afdb.org/en/topics-and-sectors/topics/financial-crisis/committee-of-ten>.

³¹² AfDB "Africa in the Wake of the Global Financial Crisis: Challenges Ahead and the Role of the Bank" 11.

³¹³ IMF "Regulatory Reform 10 years After the Global Financial Crisis: Looking Back, Looking Forward" 56.

development of international macroeconomic policy coordination,³¹⁴ as well as enhanced global economic governance.³¹⁵

Beyond this, however, the focus should also be on restoring the systemic and institutional trust that was lost after the crisis.³¹⁶ This is particularly important to ensure a well-functioning financial system, which is inherently based on trust and confidence that funds will be returned on demand.³¹⁷ As soon as these qualities are lacking, market participants withdraw until confidence is restored.³¹⁸

Unfortunately, the international monetary system has failed to fulfil this expectation over the years, as it has repeatedly run into crises, leading to a loss of confidence.³¹⁹ While it is the responsibility of the system to regulate itself and keep its institutions in check to establish credibility with the general populace,³²⁰ the financial institutions have constantly concealed their risk position and thus disregarded the interests of the public.³²¹ As a result, increased state intervention in the supervision of the financial industry has become necessary in order to restore confidence in the monetary system.³²²

Financial sector regulation reforms in response to the 2008 crisis can be demonstrated, for instance, through the implementation of the Dodd-Frank Wall Street Reform and Consumer Protection Act in the US.³²³ As the culmination of the legislation, the law aimed to prevent a recurrence of the financial crisis, promote financial stability and protect investors and consumers of financial products.³²⁴ It introduced a risk-based approach to financial regulation, which provides that the basis for the supervision of financial institutions is the nature of their actual business

³¹⁴ Ocampo "Reforming the Global Non-Monetary System" 8-11.

³¹⁵ Ocampo "Reforming the Global Non-Monetary System" 18-20.

³¹⁶ Claessens, Dell'Ariccia and Igan "Lessons and Policy Implications from the Global Financial Crisis" 13-14, 16-17.

³¹⁷ Roth "The Effect of the Financial Crisis on Systemic Trust" 1.

³¹⁸ Nishimura "Financial System Stability and Market Confidence" 4-5.

³¹⁹ Stiglitz "Reforming the International Monetary and Financial Systems in the Wake of the Global Crisis" 70.

³²⁰ Khan 2015 <https://dx.doi.org/10.2139/ssrn.2602440>.

³²¹ Rohde 2011 OECD *Journal of Financial Market Trends* 2.

³²² Gillespie and Owen "Restoring Trust in the Financial Services Sector" 14.

³²³ Barr 2012 *Yale Journal on Regulation* 92.

³²⁴ Hayes 2023 <https://www.investopedia.com/terms/d/dodd-frank-financial-regulatory-reform-bill.asp>.

and not their generic structure or nature.³²⁵ To ensure a more resilient banking system, the law requires large financial institutions to build up adequate capital and liquidity reserves over and above the minimum regulatory requirements.³²⁶

The Act also prohibits financial institutions from making high-risk speculative investments that could penalise consumers.³²⁷ In the same spirit of consumer protection, the law provides for the establishment of authorities tasked with collecting data to monitor systemic risks and research economic conditions so that risks are unlikely to build up unnoticed.³²⁸ In short, although some of the Act's restrictions were later rolled back after criticism that the law stifled competition through excessive regulation that burdened smaller companies more than their larger counterparts,³²⁹ it was a bold attempt to restore responsibility, accountability and confidence in the American financial system.³³⁰

From an Asian perspective, various measures have been taken to support the banking systems in order to ensure the stability of the financial sector following the events of the crisis.³³¹ Policy measures generally focussed on providing sufficient funding to the credit markets, restoring public confidence and preventing systemic failures.³³² Several members of the Association of Southeast Asian Nations, as well as the authorities of the People's Republic of China, Hong Kong and Taipei, have actively participated in the pursuit of the above measures, with Korea being the most aggressive.³³³

To maintain confidence in the banking system and avoid a run on the banks, several governments have provided monetary and liquidity support to banks, including

³²⁵ Barr 2012 *Yale Journal on Regulation* 92.

³²⁶ Barr 2012 *Yale Journal on Regulation* 92.

³²⁷ United States Senate "Brief Summary of the Dodd-Frank Wall Street Reform and Consumer Protection Act" 5.

³²⁸ Barr 2012 *Yale Journal on Regulation* 92.

³²⁹ United States Judiciary "Dodd Frank Act's Effects on Financial Services Competition" 1-2.

³³⁰ United States Senate "Brief Summary of the Dodd-Frank Wall Street Reform and Consumer Protection Act" 1.

³³¹ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 12.

³³² Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 12.

³³³ IMF "The State of Public Finances: Outlook and Medium-Term Policies After the 2008 Crisis" 7.

deposit and other guarantees.³³⁴ In order to support the banks threatened with collapse, some governments also made funds available to strengthen the banks' capital.³³⁵ India, for example, has injected capital into its commercial banks to increase their capital ratios.³³⁶ The People's Republic of China, on the other hand, has increased state participation in its banks via a state investment fund.³³⁷ A contingent bank capital facility has been established in Hong Kong, China,³³⁸ which was emulated by Korea.³³⁹ From a Malaysian perspective, the willingness to facilitate the recapitalisation of banks was announced.³⁴⁰

Some authorities also supported the banks by relaxing regulatory requirements.³⁴¹ An example of this is the suspension of mark-to-market valuation of some bank assets in Indonesia, the delayed adoption of Basel II by Korea and the reallocation of instruments between the banking book and the trading book in the Philippines.³⁴² In addition, some countries have taken measures to ease restrictions on the outflow of funds.³⁴³

To this end, companies in the People's Republic of China have started to buy back their own shares from the securities markets in order to increase demand for the shares and restore public confidence.³⁴⁴ The Indonesian stock market was also closed for a few days, with a temporary ban on the sale of equities and derivatives and the suspension of bond auctions.³⁴⁵ Like Indonesia, Korea has also banned short selling of shares and eased restrictions on state investment funds' access to local

³³⁴ Blanchard 2008 *Finance and Development* 9.

³³⁵ Blanchard 2008 *Finance and Development* 9.

³³⁶ Jha 2008 <https://www.eastasiaforum.org/2008/11/15/india-confronting-the-global-financial-crisis/>.

³³⁷ IMF "Fiscal Policy and the Government Balance Sheet in China" 21.

³³⁸ Tam and Kelly 2021 *Journal of Financial Crisis* 129-131.

³³⁹ Engbith 2021 *Journal of Financial Crisis* 423.

³⁴⁰ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 14.

³⁴¹ ADBI "What Is the Impact of the Global Financial Crisis on the Banking System in East Asia?" 8.

³⁴² Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 14.

³⁴³ ADBI "Managing Capital Flows in Asia: Policy Issues and Challenges" 18.

³⁴⁴ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 14.

³⁴⁵ Voice of America 2009 <https://www.voanews.com/a/a-13-2008-10-10-voa12-66793682/373801.html>.

securities markets.³⁴⁶ Taipei, China also bans short selling and relaxes conditions for margin lending.³⁴⁷

The above policy responses were swift and aggressive, mitigating the immediate impact of the crisis and reducing the scale of the resulting systemic risk.³⁴⁸ However, the stabilising effect of these responses was only effective as a short-term solution, as they had considerable disadvantages.³⁴⁹ As the answers are exceptionally accommodating, this could create a favourable environment for financial recklessness, which could drive future problems.³⁵⁰

In addition, frequent government intervention could put governments in a negative financial position in the future, including possible significant losses at the expense of taxpayers' and investors' money.³⁵¹ As each government looks after its own economic interests and protects its own financial system, without a coordinated framework for regional policy support, there will be conflicts of interest between regional economies, fuelling competition between economies, which could lead to sub-optimal or inefficient policy support.³⁵² A well-established regional framework for crisis management could reduce potential policy errors and unnecessarily high costs in responding to financial crises.³⁵³

While supervision of the financial sector has improved following the crisis, as described above, innovation and globalisation continue to impact the evolving financial landscape, necessitating a review of the current regulatory framework.³⁵⁴

The crisis of 2008 left a lasting loss of confidence, fear of capital loss, low interest rates and uncertainty about the security of fiat currencies, causing virtual currencies

³⁴⁶ ADB "Lessons from the 1997 and the 2008 Crises in the Republic of Korea" 9.

³⁴⁷ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 14.

³⁴⁸ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 14.

³⁴⁹ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 14.

³⁵⁰ Dervis and Kharas "Introduction: The G-20 and Central Banks in the New World of Unconventional Monetary Policy" 2.

³⁵¹ Rasmussen and Skeel 2016 *University of Pennsylvania Journal of Business Law* 30-31.

³⁵² Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 15.

³⁵³ IMF 2009 <https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp051509>.

³⁵⁴ Asian Development Bank "Beyond the Crisis: Financial Regulatory Reform in Emerging Asia" 15-16.

to gain in importance.³⁵⁵ These currencies have quickly become a reality, have gained a popularity that transcends national borders and are developing rapidly.³⁵⁶ Due to their decentralised nature, this poses a challenge for users, countries and regulatory authorities alike,³⁵⁷ and it is time for the international monetary system to adopt reforms that also take account of the transition to a new normality.

2.4 Conclusion

This chapter traced the development of the global financial framework by describing past and recent financial crises and linking them to the events that triggered them. To this end, the financial and non-financial features of the international monetary system that triggered the occurrence of these crises were analysed. This provides context and helps to understand the interconnectedness of the various actors and the emerging vulnerabilities of the system.

Finally, this chapter analyses the consequences of financial crises in terms of their global economic impact. One focus is on the most recent crisis of 2008, which on average led to job losses and poverty throughout the world. Beyond this aggregate view, the extent of the impact was determined by the fiscal situation of each country before the crisis, the vulnerabilities, the transmission channels and the measures taken to cope with and mitigate the impact.

The chapter has also shown that while the response of developed and developing countries has focused on stimulus and labour market measures, these have proved insufficient to fully address the systemic risks of the international monetary system. At most, they have helped the countries to prevent major economic slumps.

Against this background, this chapter shows at least the greatest weaknesses of the system of global economic governance. It also shows that globalisation poses a new challenge to global growth and development, as developing countries continue to suffer from the effects of deficiencies in the financial systems of developed countries.

³⁵⁵ Richter 2015 *International Business and Economics Research Journal* 575.

³⁵⁶ Trautman 2014 *Richmond Journal of Law and Technology* 1-2.

³⁵⁷ Grimmelmann 2014 *Pace Law Review* 135.

Given the increasing integration and interdependence of the global economy, it is advisable for the system of global economic governance to keep pace with this dynamic. The chapter therefore argues in favour of a restructuring of the global monetary and financial framework that goes beyond strengthening financial supervision and control to help prevent future crises.

Given the preceding discussion, it is clear that the future of the international monetary infrastructure is unclear, and the extent to which it will change is not yet foreseeable.

The following Chapter 3 deals with the emergence of virtual currencies, in particular cryptocurrencies. The chapter looks at the role of cryptocurrencies in the financial system and analyses their advantages and disadvantages compared to fiat currencies and gives an outlook on a new monetary system with potentially high efficiency and transparency and the possibility of leading to a paradigm shift in the international monetary system.

CHAPTER 3: THE EMERGENCE OF CRYPTOCURRENCY AND ITS ROLE IN THE FINANCIAL SYSTEM

3.1 Introduction

With the understanding of the theoretical and conceptual foundations of money, currency and the international monetary system conveyed in chapter 2, it is important at this point to supplement this discussion with the theoretical and conceptual foundations of cryptocurrencies. The connection between fiat currencies and decentralised currencies is presented below.

As already mentioned, the transfer of value in financial systems has evolved from the humble beginnings of barter to the gold standard to fiat currency.³⁵⁸ With each era in which societies grew, the financial system became more complex and the need for a trustworthy intermediary and payment system arose.³⁵⁹ Thus, traditional banks have historically played a central role as financial intermediaries, with central banks at the forefront of the payments system.³⁶⁰

However, technology is slowly changing the existing payment system and the financial landscape in general, leading to a decline in traditional banking transactions.³⁶¹ The defining moment was in 2009, when Bitcoin, the most popular cryptocurrency used as an example in this article, was created. The underlying technology has been hailed by some as the most transformative technology since the internet.³⁶²

The main feature of cryptocurrencies in general is their decentralised nature, which enables automated transactions without dependence on intermediaries.³⁶³ This characteristic qualifies cryptocurrencies as the breakthrough that could potentially solve the pitfalls of the traditional financial system.³⁶⁴ However, they also pose a

³⁵⁸ The evolution of money was traced in detail in chapter 1 above.

³⁵⁹ Bouveret and Haksar 2018 *Finance and Development Journal* 26.

³⁶⁰ Bouveret and Haksar 2018 *Finance and Development Journal* 26.

³⁶¹ Yee 2014 *Internet Policy Review* 2.

³⁶² Akgiray "Block chain Technology and Corporate Governance" 3.

³⁶³ Shadab "Regulating Bitcoin and Blockchain Derivatives" 2.

³⁶⁴ Marian 2015 *The University of Chicago Law Review* 55-56.

conundrum for regulators, as they are well suited to facilitating illicit financial flows.³⁶⁵

This chapter looks at how policymakers can strike a balance between the innovative potential of cryptocurrencies and their regulation. The intersection of finance and technology poses major regulatory challenges for governments, as laws already in place in the financial system may become outdated when applied to a new ecosystem, leaving consumers and investors unprotected.³⁶⁶

In order to understand the benefits, risks and challenges associated with cryptocurrencies, it is important to familiarise the reader with the definitions, characteristics and concepts of their underlying principles. The chapter is therefore structured as follows. Firstly, a technical overview of the concept and functioning of cryptocurrencies and their underlying blockchain technology is provided. Secondly, the positive potential of cryptocurrencies and the regulatory challenges they pose for the traditional monetary system are highlighted. The chapter concludes with a policy recommendation for regulators to adopt a regulatory approach to cryptocurrencies.

3.2 Overview of cryptocurrency

The global financial crisis of 2008, like previous crises, required government intervention to prevent the complete collapse of the private and financial sectors.³⁶⁷ To this end, state bailouts and rescue programmes were launched to provide economic relief to the affected countries, with the bailouts costing up to trillions of dollars in the USA alone, for example.³⁶⁸

The public's growing frustration with central banks as the sole authorities responsible for issuing currency has been amplified by a resulting decline in confidence in the financial system following these interventions,³⁶⁹ and thus fuelled the creation of

³⁶⁵ Marian 2015 *The University of Chicago Law Review* 55-56.

³⁶⁶ Tu and Meredith 2015 *Washington Law Review* 274.

³⁶⁷ Davis 2020 *US Government Financial Bailouts*
<https://www.investopedia.com/articles/economics/08/government-financial-bailout.asp>.

³⁶⁸ Davis 2020 *US Government Financial Bailouts*
<https://www.investopedia.com/articles/economics/08/government-financial-bailout.asp>.

³⁶⁹ He 2018 *Finance and Development Journal* 14.

cryptocurrencies. It was assumed that cryptocurrencies would be more stable and less susceptible to system failures than the traditional financial system.³⁷⁰

3.2.1 *What are cryptocurrencies and how do they operate?*

Cryptocurrency is a form of digital currency used to facilitate online transactions.³⁷¹ It has no physical form,³⁷² and operates without a financial intermediary.³⁷³ This means that it is neither issued nor backed by a government and therefore exists outside the scope of the current system of financial regulation, monetary policy and supervision.³⁷⁴ Instead, centralised control is assumed by members of a network of validators who verify transactions and ensure that each user retains their rightful currency balance.³⁷⁵

The following diagram depicts the basic cryptocurrency architecture.³⁷⁶

³⁷⁰ DeVries 2016 *International Journal of Business Management and Commerce* 2. DeVries submits that the reason that cryptocurrencies are considered by some to be the more viable currency compared to fiat currencies is due to the characteristics of the currency that allow it to retain its value in the long term while remaining limited in circulation. There is a limit to the maximum number of cryptocurrencies that can be in circulation on the market at any one time. Bitcoin, for example, was designed with a limited supply of only 21 million Bitcoins, which makes it inherently deflationary and not inflationary, as there can never be an oversupply of Bitcoins. Furthermore, cryptocurrencies are generally considered to be protected against government-influenced inflation. As the value of cryptocurrencies is not dependent on inflation, investors are encouraged to participate in cryptocurrency activities rather than fiat currency activities in the traditional financial sector, which are inflationary. Nevertheless, it is worth noting that cryptocurrencies are not necessarily completely immune to general price fluctuations, as a number of external factors can influence them.

³⁷¹ Frankenfield 2020 *Cryptocurrency Definition* <https://www.investopedia.com/terms/c/cryptocurrency.asp>.

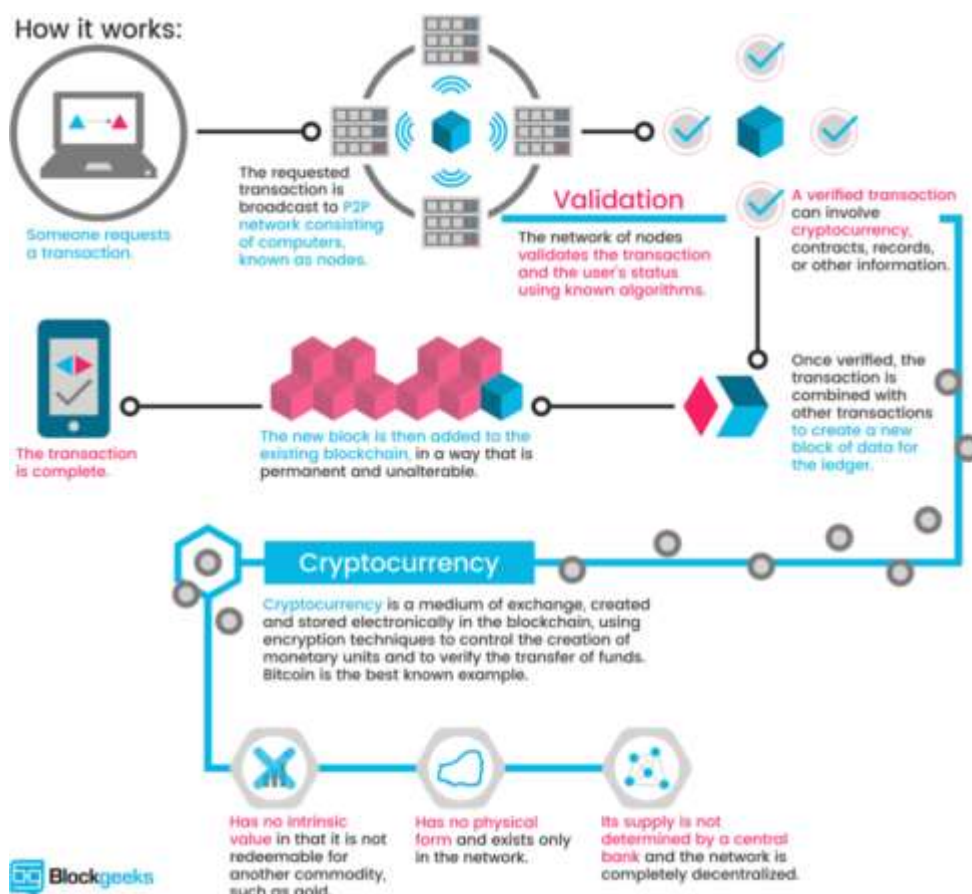
³⁷² Berentsen and Schar 2018 Federal Bank of St. Louis Review 4.

³⁷³ Caytas 2017 *Columbia Business Law Review* 1.

³⁷⁴ Peters, Panayi and Chapelle 2015 *Journal of Financial Perspectives* 10.

³⁷⁵ Chiu and Koepl "The Economics of Cryptocurrencies-Bitcoin and Beyond" 5. Chiu and Koepl note that a new block is only added to the network if the majority of the members of the network have reached a consensus on the validity of a transaction. In order for consensus to be reached and for each member to receive a copy of the public ledger, there is no specific time or forum in which they meet and agree. Instead, consensus is reached through the interaction of members after each of them has independently i) verified and validated a transaction ii) found a solution to the proof-of-work algorithm and distributed it to the network iii) tested the validity of proposed new blocks, added a copy to their ledger and distributed it to the network iv) worked on a new block in the longest chain. There are other consensus mechanisms, but they fall outside the scope of this paper. See Mahmood et al 2018 <https://dx.doi.org/10.2139/ssrn.3556482> and Sankar et al "Survey of consensus protocols on block chain applications" for further reading.

³⁷⁶ BlockGeeks 2016 <https://blockgeeks.com/guides/what-is-cryptocurrency/>.



Source: BlockGeeks, 2016

The cryptocurrency system relies on the underlying blockchain technology to function,³⁷⁷ which is basically a digitised, distributed and decentralised public ledger.³⁷⁸ It enables the decentralisation of trust and the decentralised verification of transactions.³⁷⁹ If the middleman is eliminated, there is a chance that the efficiency of the financial system will increase. At the same time, however, there is also the possibility that the financial system will be exposed to risks that are normally managed by intermediaries.³⁸⁰

³⁷⁷ Nica, Piotrowska and Schenk-Hoppe "Cryptocurrencies: Concept and Current Market Structure" 13. Although the Block chain technology was originally developed for Bitcoin, its application can be seen beyond currencies and at play in different spheres like smart contracts.

³⁷⁸ Reiff 2020 <https://www.investopedia.com/terms/b/block-chain.asp>.

³⁷⁹ Witzig and Salomon "Cutting out the Middleman" 5.

³⁸⁰ Houben and Snyers "Cryptocurrencies and Block chain" 17-18. Such as liquidity risk and systemic risk. See Bank for International Settlements 2017 "Distributed ledger technology in payment, clearing and settlement" 19.

Blockchain technology essentially works in such a way that computers³⁸¹ join an Internet-based network that allows them to access various other systems within the network as well as the files on other members' computers,³⁸² to facilitate the verification and recording of transactions in exchange for a reward,³⁸³ in a process referred to as crypto mining.³⁸⁴

Crypto mining is the lifeblood of the cryptocurrency system and the only way to keep cryptocurrencies in circulation.³⁸⁵ Thus, through a proof-of-work process,³⁸⁶ miners are required to solve a complex equation using a high-performance computer.³⁸⁷ The difficulty level of the mining is changed regularly to ensure a constant mining speed,³⁸⁸ and due to the increasing complexity, normal computers do not have the ability to solve equations that require robust mining techniques.³⁸⁹

Regardless of the proof-of-work, however, the system remains vulnerable to manipulation by anyone with the necessary computing power - through so-called

³⁸¹ Technically referred to as Nodes.

³⁸² Financial Action Task Force "Virtual Currencies: Key Definitions and Potential AML/CFT Risks" 5. Users are protected from security breaches and unauthorised transfers through the use of private and public keys to prevent transaction forgery. These keys are a core component of the cryptocurrency system, which is based on cryptography.

³⁸³ Gartz and Lindebrandt *Are Cryptocurrencies the Future of Money?* 10. A mining reward is a predetermined amount of cryptocurrency that participants receive for using their computer power to successfully mine a block and add it to the blockchain. Mining rewards serve as an incentive for participants to continue mining.

³⁸⁴ Kakavand, De Sevres and Chilton 2017 <https://ssrn.com/abstract=2849251>. Sangeetha, Jereesha and Joe 2019 *IJITEE* 806 demonstrate that "in practice, block chain will first initiate a transaction request, then a block representing the transaction is generated, next the block is broadcasted to all nodes in the network, each node then verifies the transaction's authenticity and validates it. Nodes are rewarded with points (bitcoins). The block is appended to the existing blockchain before the transaction is finalized."

³⁸⁵ Hong 2020 <https://www.investopedia.com/tech/how-does-bitcoin-mining-work/>.

³⁸⁶ Alsabah and Capponi <https://ssrn.com/abstract=3273982>. The reason for the proof of work is that users can prove that they have contributed to the solution of a mathematical equation and have reached a consensus with other users on the verification and recording of a new block. The effort required to provide a proof of work serves as a deterrent to malicious actors launching an attack on the system.

³⁸⁷ Hardle, Harvey and Reule "Understanding Cryptocurrencies" 7.

³⁸⁸ Dwyer 2014 <https://dx.doi.org/10.2139/ssrn.2434628>; Noda, Okumura and Hashimoto "An Economic Analysis of Difficulty Adjustment Algorithms" 9-10. It is noteworthy that there is no actual formula for the difficulty adjustment. In his white paper "Bitcoin: A peer to peer Electronic Cash System" 3, Nakamoto shares:

"To compensate for increasing hardware speed and varying interest in running nodes over time, the proof-of-work difficulty is determined by a moving average targeting an average number of blocks per hour. If they're generated too fast, the difficulty increases."

³⁸⁹ Peters, Panayi and Chapelle 2015 *Journal of Financial Perspectives* 16.

"double spending".³⁹⁰ This occurs when a single cryptocurrency unit is issued multiple times,³⁹¹ expose the entire system to a mining monopoly, where malicious users claim the computing power for themselves and try to earn all the rewards by preventing other users from mining new blocks.³⁹²

While the above would not necessarily topple the cryptocurrency system,³⁹³ the trust of users would be undermined because the system derives its credibility from the assumption that it is designed in such a way that no user or group of users can have a computing power of more than 50%.³⁹⁴ It is assumed that in the opposite case, the system would not protect users from double spending, a vulnerability that the blockchain was designed to overcome.³⁹⁵ It can be concluded from this that allowing double spending would lead to a loss of trust and users would eventually leave the network.

In other words, the world of cryptocurrencies works according to the principle of decentralisation.³⁹⁶ Instead of depending on central bank money and trusted intermediaries, cryptocurrencies rely on a network of anonymous validators who keep records of transactions.³⁹⁷ Decentralized finance, commonly known as "DeFi," seeks to emulate traditional financial systems in the cryptocurrency space, often backed by stablecoins as a medium of exchange.³⁹⁸ DeFi introduces innovations such

³⁹⁰ Frankenfield 2020 <https://www.investopedia.com/terms/d/doublespending.asp>.

³⁹¹ Reiff 2020 <https://www.investopedia.com/ask/answers/061915/how-does-block-chain-prevent-doublespending-bitcoins.asp>.

³⁹² This is referred to as the 51% attack where a group of users control more than 50% of the cryptocurrency network's computational power. Frankenfield 2019 <https://www.investopedia.com/terms/1/51-attack.asp>.

³⁹³ Carr and Marshall "Block chain Enigma. Paradox. Opportunity" 7. The article puts forward that although miners controlling more than 50% of the computing power could disrupt the recording of new blocks and encourage the double-spending of coins, the cryptocurrency network would not be destroyed. This is because the malicious actors could not easily change already completed blocks or issue new coins due to the nature of the blockchain. This is because each new block added to the network contains information from a previous block, and the longer the chain, the more difficult it is to alter transactions. In addition, the blocks are chronologically linked, which makes them tamper-proof and makes it easy for users to reject fraudulent transactions as they have tracked and verified the information.

³⁹⁴ Becker, Breuker and Heide "Can We Afford Integrity by Proof- of- Work? Scenarios Inspired by the Bitcoin Currency" 2.

³⁹⁵ Frankenfield 2019 <https://www.investopedia.com/terms/1/51-attack.asp>.

³⁹⁶ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 1.

³⁹⁷ WBG "Distributed Ledger Technology (DLT) and Blockchain" 4.

³⁹⁸ Shah et al 2023 *International Journal of Intelligent Networks* 171.

as programmable and composable functions in blockchains that enable continuous global transactions around the clock.³⁹⁹

However, recent events have exposed a significant gap between the idealized vision of cryptocurrency and its reality.⁴⁰⁰ Although decentralization is a core principle, in practice, centralized intermediaries have contributed significantly in overseeing and enabling transactions within the crypto world.⁴⁰¹ The collapse of the FTX crypto exchange highlights the sector's vulnerabilities, which mirror those of traditional finance but are often magnified.⁴⁰²

When looking at the key components of the cryptocurrency ecosystem, its structural weaknesses and the risks it poses, three main conclusions can be highlighted. First, the cryptocurrency ecosystem is highly fragmented and suffers from congestion and high fees, even if it had strictly adhered to its decentralised ideals.⁴⁰³ These problems are due more to the incentives of the validators than to technological shortcomings. While cryptocurrency has produced some real innovations, these could be integrated into the more secure and reliable traditional financial system.⁴⁰⁴

Secondly, despite their decentralised ethos, cryptocurrencies and DeFi often exhibit significant centralisation, which causes various problems.⁴⁰⁵ Thus, stable coins depend on the credibility of central bank currencies and could jeopardise monetary sovereignty.⁴⁰⁶ Thirdly, although DeFi largely mimics traditional financial services, it

³⁹⁹ Alamsyah et al 2024 *MDPI Journal* 15, 21.

⁴⁰⁰ Bank for International Settlements "Annual Economic Report 2022" 76.

⁴⁰¹ European Central Bank 2023 https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230623_1~80751450e6.en.html.

⁴⁰² Manda and Yadav "The Aftermath of the FTX Cryptocurrency Exchange Collapse" 104 - 105.

⁴⁰³ Bank for International Settlements "Annual Economic Report 2018" 100; Boissay et al "Blockchain Scalability and the Fragmentation of Crypto" 3.

⁴⁰⁴ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 1.

⁴⁰⁵ For discussions on the centralization aspects of cryptocurrency and decentralized finance, see amongst others Catalini and Gans 2019 *National Bureau of Economic Research*; Narayanan *Bitcoin and Cryptocurrency Technologies*; and Koh and Lee 2021 *Journal of Financial Innovation*.

⁴⁰⁶ See Friedman 1999 *International Finance* 321 – 338; Zohar 2021 *Journal of Financial Stability* 56; Bank for International Settlements "Stablecoins: Risks, Potential and Regulation" 1-28; Gans 2020 *Journal of Economic Perspectives* 145 – 162; Bauer and Lee *Journal of Economic Behavior & Organization* 302-317; Arner, Barberis and Buckley Georgetown 2020 *Journal of International Law* 127 – 200; Kahn and Roberds 2009 *Federal Reserve Bank of Atlanta Economic Review* 1-16; He and Wang 2021 *Journal of Financial Regulation and Compliance* 465-479; and Schilling and Uhlig 2021 *Journal of Monetary Economics* 1-12.

does not contribute to the real economy and instead amplifies existing risks.⁴⁰⁷ The speculative nature of crypto and DeFi primarily attracts investors looking for high returns and harbours significant risks, especially for retail investors.⁴⁰⁸ In conclusion, it could be argued that the fundamental structural weaknesses of cryptocurrency render it inappropriate for a productive function within the monetary system.⁴⁰⁹

The beginnings of cryptocurrency can be traced back to the launch of Bitcoin in 2009.⁴¹⁰ Bitcoin is a decentralised peer-to-peer system for the transfer of value using a shared public ledger, the so-called public blockchain, which uses distributed ledger technology "DLT".⁴¹¹ Originally, cryptocurrency was characterised by the fact that it was not backed by a physical asset and that it was intended to minimise the influence of intermediaries through decentralisation.⁴¹² Crypto asset ownership and activity are verified by distributed nodes and logged on a shared record.⁴¹³

When one party intends to send digital tokens to another, the recipient, authenticated by their secure cryptographic signature, provides the exchange information, including the involved individuals, the total amount, or any associated costs.⁴¹⁴ As explained in more detail in the following section, validators, also known

⁴⁰⁷ Fischer and Krüger 2021 *Journal of Financial Regulation and Compliance* 497-507; Baur and Lee *Journal of Economic Behavior* 169, 302–317; Levine 2018 *Journal of Financial Stability* 1-7; Arner, Barberis and Buckley 2020 *Northwestern Journal of International Law & Business* 371 – 414; and Schar 2021 *Federal Reserve Bank of St. Louis Review* 153-174.

⁴⁰⁸ See Cheah and Fry 2015 *International Review of Financial Analysis* 88-100; Baur, Lee and Lee 2018 *Journal of International Financial Markets, Institutions and Money* 177-189; Klein and Kocoglu 2021 *Journal of Risk and Financial Management* 14; and Wang and Vergne 2017 *Journal of Business Research* 146-155.

⁴⁰⁹ Bank for International Settlements "The crypto ecosystem: key elements and risks" 5. See also Narayanan et al *Bitcoin and Cryptocurrency Technologies*; Bohme et al 2015 *Journal of Economic Perspectives* 213-238; Zohar 2015 *Communications of the ACM* 104-113; Ehsani and Khajeh-Hosseini 2020 *Future Generation Computer Systems* 110-128. Kroll, Davey and Felten *The Economic Journal* 1-23; Makarov and Schoar *The Review of Financial Studies* 6508-6553.

⁴¹⁰ Bohme and Moore *Journal of Economic Perspectives* 213-238.

⁴¹¹ Devi 2019 *International Journal of Commerce* 43. See Tapscott and Tapscott *Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World*; Dwyer 2015 *Journal of Financial Stability* 81-91.

⁴¹² Nakamoto "Bitcoin: A Peer-to-Peer Electronic Cash System" 1.

⁴¹³ Bank for International Settlements "The crypto ecosystem: key elements and risks" 2. See also Narayanan et al *Bitcoin and Cryptocurrency Technologies*; Eyal and Sirer 2014 *Communications of the ACM* 12-15; and Zhang and Wen 2019 *International Journal of Information Management* 206-218.

⁴¹⁴ Bank for International Settlements "The crypto ecosystem: Key Elements and Risks" 2. See also Ehsani and Khajeh-Hosseini *Future Generation Computer Systems* 110-128; Mackenzie 2021 *Politics and Governance* 162-172; Kiviat 2015 *Yale Journal on Regulation* 327-376; De Filippi and

as "miners", compete to verify this transaction; the chosen one adds it to the blockchain and receives a reward in the form of crypto-asset fees.⁴¹⁵ The revised blockchain is subsequently shared with all validators and participants in the network.⁴¹⁶ This process guarantees that the complete record of transactions is transparent and associated with particular wallets, yet the actual identities of the wallet holders remain concealed.⁴¹⁷ Blockchain transactions are therefore pseudo-anonymous.⁴¹⁸ By publishing all transaction data, the system confirms that each transaction matches the historical records of the blockchain and guarantees that the cryptocurrency legitimately belongs to the seller and has not been duplicated or issued more than once.⁴¹⁹

As interest in cryptocurrencies grew, centralised institutions began to play a greater role in directing funds into cryptocurrencies.⁴²⁰ Centralized exchanges that enable

Wright *Blockchain and the Law: The Rule of Code*; Schar 2021 *Federal Reserve Bank of St. Louis Review* 153-174; Katz and Lindell *Introduction to Modern Cryptography: Principles and Protocols*; Tschorsch and Weiss *IEEE Communications Surveys & Tutorials* 2084-2120.

⁴¹⁵ Bank for International Settlements "The crypto ecosystem: Key Elements and Risks" 2. See also Narayanan et al *Bitcoin and Cryptocurrency Technologies*; Bohme et al 2015 *Journal of Economic Perspectives* 213-238; Kroll, Davey, and Felten 2013 *The Economic Journal* 1-23; Zohar 2015 *Communications of the ACM* 104-113; Eyal and Sirer *Communications of the ACM* 12-15; Mackenzie 2021 *Politics and Governance* 162-172; Kiviat 2015 *Yale Journal on Regulation* 327-376; De Filippi and Wright *Blockchain and the Law: The Rule of Code*; Schar 2021 *Federal Reserve Bank of St. Louis Review* 153-174; Katz and Lindell *Introduction to Modern Cryptography: Principles and Protocols*; Tschorsch and Weiss *IEEE Communications Surveys & Tutorials* 2084-2120.

⁴¹⁶ Crosby et al *Applied Innovation Review* 6-10; Koutroumanis 2019 *Journal of Computer and System Sciences* 104-11; Swan 2015 *Blockchain: Blueprint for a New Economy*; Xu, Zhong and Huang 2019 *Journal of Network and Computer Applications* 49-58; Dinh, Liu, Zhang, and Chen 2017 *IEEE Transactions on Big Data* 250-265; Beck and Müller-Bloch 2017 *Journal of Management Information Systems* 229-254; and Gikopoulos and Karakostas 2021 *Government Information Quarterly*.

⁴¹⁷ Baker and Wurgler 2019 *Journal of Economic Perspectives* 41-66; Mackenzie 2021 *Politics and Governance* 162-172; Chen and Bellavitis 2020 *Journal of Business Research* 282-292; Zhang and Chen 2019 *Journal of Financial Stability* 1-10.

⁴¹⁸ Böhme, Christin, Edelman, and Moore *Journal of Economic Perspectives* 213-238; Zohar 2015 *Communications of the ACM* 104-113; and Beck and Müller-Bloch *Journal of Management Information Systems* 229-254.

⁴¹⁹ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 2. For further reading see Catalini and Gans "Some Simple Economics of the Blockchain" 1-34; Zohar 2015 *Communications of the ACM* 104-113; and Mougayar *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology*.

⁴²⁰ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 2; Catalini and Gans "Some Simple Economics of the Blockchain" 5; Gans 2019 *Harvard Business Review* 29; Narayanan *Bitcoin and Cryptocurrency Technologies* 163; Liu and Weng 2021 *Journal of Banking and Finance* 12; Baur, Lee and Lee *Journal of International Financial Markets, Institutions and*

trading between Bitcoin, altcoins, and fiat currencies have played a role in driving up crypto prices by drawing in new investors, creating a continuous positive feedback loop.⁴²¹ Centralised exchanges, including Mt Gox, Binance, Coinbase, Kraken and FTX until its sudden downfall at the end of 2022, have consistently highlighted their crucial position in the cryptocurrency market.⁴²² This system, referred to as centralized finance or "CeFi" within the crypto community, has influenced the instability of cryptocurrency prices through its variations.⁴²³

Another key element of the crypto ecosystem are the stable coins, which have become the primary medium of exchange within the cryptocurrency ecosystem and represent an important entry point.⁴²⁴ They are named after their objective of maintaining a consistent value in relation to a specific asset or group of assets.⁴²⁵ As a rule, stable coins are pegged to the US dollar, although they can also be linked to different forms of currency or valuable assets, like gold or alternative digital currencies.⁴²⁶ This bond helps them to mitigate problems of high volatility and low

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- Money* 184; Zohar 2015 *Communications of the ACM* 110; Liu and Wang *International Journal of Production Research* 3352; and O'Dair 2016 *Journal of Strategic Innovation and Sustainability* 8.
- ⁴²¹ Cong and He 2019 *Review of Financial Studies* 2210; Liu and Weng 2021 *Journal of Banking and Finance* 14; Mougayar *The Business Blockchain: Promise, Practice, and the Application of the Next Internet Technology* 117.
- ⁴²² Athey and Catalini 2020 *Journal of Financial Stability* 6; Cheah and Fry *Economics Letters* 34; Friedman 2018 *International Journal of Information Management* 126; Klein 2018 *Journal of Business Research* 267; Peters and Panayi 2016 *Journal of Financial Perspectives* 9; Gans and Halaburda 2016 *Information Economics and Policy* 8; Wang 2020 *Finance Research Letters* 101; Kouadio and Orji 2020 *Journal of Financial Markets* 105; Zhang and Wang 2021 *International Review of Financial Analysis* 108.
- ⁴²³ Catalini and Gans "Some Simple Economics of the Blockchain" 6; Baur, Lee and Lee *Journal of International Financial Markets, Institutions and Money* 183; Zohar 2015 *Communications of the ACM* 111; Cong and He 2019 *Review of Financial Studies* 2212; Liu and Weng 2021 *Journal of Banking and Finance* 15; Gans 2019 *Harvard Business Review* 29; Mougayar *The Business Blockchain: Promise, Practice, and the Application of the Next Internet Technology* 121; and Liu and Wang *International Journal of Production Research* 3356.
- ⁴²⁴ Auer and Böhme "The Technology of Retail Central Bank Digital Currency" 7; Baur and Lee 2019 *Journal of Financial Stability* 105; Dai and Zhu *Journal of Financial Markets* 10; Peters and Panayi *Journal of Financial Perspectives* 11; and Bénassy-Quéré et al *CEPR Policy Insight* 15.
- ⁴²⁵ Auer and Böhme "The Technology of Retail Central Bank Digital Currency" 7; and Baur and Lee 2019 *Journal of Financial Stability* 106; Zhang and Wang 2021 *Finance Research Letters* 102; Dai and Zhu 2019 *Journal of Financial Markets* 10; Shin 2020 *Journal of Digital Banking* 238; and Gans 2019 *Harvard Business Review* 29.
- ⁴²⁶ Friedman 2018 *International Journal of Information Management* 126; Peters and Panayi *Journal of Financial Perspectives* 11; Kouadio and Orji *Journal of Financial Markets* 105; Liu and Weng *Journal of Banking and Finance* 15; and Zhang 2020 *Journal of Financial Economics* 15.

liquidity, making them effective for transactions.⁴²⁷ There are two main categories of stable coins, depending on how they hold their peg.⁴²⁸ In the DeFi ecosystem, stable coins are crucial.⁴²⁹ Most are "asset-backed" and managed by centralised entities, With the foundational assets often consisting of US government securities, short-term corporate debt, or financial institution deposits.⁴³⁰

These organisations manage the investment in securities and monitor the issue and redemption of stablecoins.⁴³¹ Notable examples include USD Coin and Tether.⁴³² In contrast, "algorithmic stablecoins" are designed to maintain their fixed value by making automatic adjustments to the supply and arbitraging with a volatile partner currency.⁴³³ These are typically not supported by tangible assets, as evidenced by the downfall of TerraUSD, a prominent example. Despite setbacks and volatility, the cryptocurrency market continued to grow until the end of 2021.⁴³⁴

⁴²⁷ Fasanotti and Martino 2021 *Journal of Financial Regulation and Compliance* 50; Schär 2021 *Federal Reserve Bank of St. Louis Review* 15; and Krause 2020 *Financial Innovation* 10.

⁴²⁸ Klein 2020 *Journal of Business Research* 250; Peters and Panayi 2016 *Journal of Financial Perspectives* 11; and Liu and Weng *Journal of Banking and Finance* 15.

⁴²⁹ Schär *Federal Reserve Bank of St. Louis Review* 10; Aramonte and Avalos *Bank for International Settlements Bulletin* 6; Rogers and Mehta 2022 *Journal of Banking and Finance Technology* 220; and Decker and Wattenhofer "A Blockchain-Based Approach to Decentralised Finance" 5.

⁴³⁰ Liu and Huang 2021 *Journal of Digital Banking* 350; see further Gans and Halaburda 2019 *Journal of Economics & Management Strategy* 888; Klein and Robinson 2020 *International Journal of Law and Management* 318; and Gulzar and Kalia 2022 *Finance Research Letters* 106.

⁴³¹ Rogers and Mehta 2022 *Journal of Banking and Finance Technology* 155; Zhang and Liu 2021 *Journal of Financial Regulation and Compliance* 280; Auer 2021 *BIS Quarterly Review* 15; Harrison and O'Connor 2020 *Journal of Banking and Finance Technology* 50; and Klein and Duran 2022 *Journal of Financial Markets* 92.

⁴³² Klein and Duran 2022 *Journal of Financial Markets* 92; Gans and Halaburda 2019 *Journal of Economics & Management Strategy* 889; Zohar 2021 *Journal of Financial Perspectives* 62; Rogers and Mehta 2022 *Journal of Digital Finance* 157; Aramonte and Avalos 2021 *Bank for International Settlements Bulletin* 6.

⁴³³ Friedman 2021 *International Journal of Information Management* 105; Zhang and Wang 2022 *Finance Research Letters* 106; Schär 2021 *Federal Reserve Bank of St. Louis Review* 15; Baur and Lee 2019 *Journal of Financial Stability* 105; and Benedict and Hennings 2022 *Journal of Digital Finance* 68.

⁴³⁴ Baur and Lee 2019 *Journal of Financial Stability* 102; Auer and Böhme "The Technology of Retail Central Bank Digital Currency" 10; Klein 2021 *Journal of Digital Finance* 210; and Zohar 2021 *Journal of Financial Perspectives* 63. In 2021, the cryptocurrency market experienced rapid growth and mainstream adoption, with Bitcoin reaching an all-time high of nearly USD69,000 in November and Ethereum surging due to the rise of NFTs and DeFi. Institutional investment increased, and El Salvador became the first country to adopt Bitcoin as legal tender. However, the second half of the year saw growing volatility, environmental concerns, and global regulatory crackdowns most notably China's complete ban on crypto activities and rising scrutiny from U.S. regulators. While prices remained high, the year also exposed systemic risks and excessive speculation that laid the groundwork for the major crypto crashes of 2022.

Smart contracts are another important element of the crypto ecosystem. Following the launch of Bitcoin, many other cryptocurrencies and blockchains have emerged, with Ethereum and its associated currency Ether making a significant appearance in 2015.⁴³⁵ Ethereum and various emerging blockchains offer a "programmability" that allows developers to create applications on these platforms by utilizing blockchain-based agreements.⁴³⁶

Smart contracts are autonomous programs that carry out tasks when specific predefined conditions are fulfilled. This automates market functions and potentially reduces the need for traditional intermediaries.⁴³⁷ It would be better to call them unsupervised contracts, because their code is open source and accessible for review.⁴³⁸ However, since smart contracts cannot obtain external data directly from "off-chain" sources, they rely on oracles to provide this information.⁴³⁹

A key feature of smart contracts is their "composability"," i.e. they can incorporate various system components.⁴⁴⁰ This allows individuals to carry out complicated transactions by merging multiple commands into a smart contract, effectively forming a "money lego"⁴⁴¹

⁴³⁵ Narayanan et al *Bitcoin and Cryptocurrency Technologies* 221; Klein and Duran 2021 *Journal of Digital Banking* 254; Athey and Catalini 2020 *Journal of Financial Stability* 6; Zohar 2015 *Communications of the ACM* 111; and Catalini and Gans 2016 *National Bureau of Economic Research* 10.

⁴³⁶ Buterin "A Next-Generation Smart Contract and Decentralised Application Platform" 3; Klein and Duran 2021 *Journal of Digital Banking* 252; Schär 2021 *Federal Reserve Bank of St. Louis Review* 12; Zohar 2021 *Journal of Financial Perspectives* 61; Liu and Weng 2021 *Journal of Banking and Finance* 15.

⁴³⁷ Christidis and Devetsikiotis 2016 *IEEE Access* 2294; Tapscott and Tapscott *Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World* 75; Müller 2019 *Journal of Business Research* 316; and Schär 2021 *Federal Reserve Bank of St. Louis Review* 13.

⁴³⁸ Harrison and O'Connor 2020 *Journal of Blockchain Research* 22; Fischer and Schöning 2019 *International Journal of Information Systems and Project Management* 40; Cohen 2020 *Journal of Digital Banking* 82; Swan *Blockchain: Blueprint for a New Economy* 139.

⁴³⁹ Sullivan 2020 *Journal of Digital Finance* 205; Böhme, Christin, Edelman, and Moore 2015 *Journal of Economic Perspectives* 225.

⁴⁴⁰ Hassan and Ranjan 2021 *Journal of Information Technology* 195; Haffke and Mettler 2021 *Business & Information Systems Engineering* 358; Atalay and Hult 2022 *Journal of Business Research* 375; Bénet and Garbani 2020 *Journal of Internet Services and Applications* 7; and Drescher *Blockchain Basics: A Non-Technical Introduction in 25 Steps* 155.

⁴⁴¹ Klein and Duran 2021 *Journal of Digital Banking* 256; Hassan and Ranjan 2021 *Journal of Information Technology* 197; and Benedict and Hennings 2021 *Journal of Financial Services Research* 15.

Programmability has also paved the way for DeFi, a new ecosystem that offers traditional financial services via the blockchain.⁴⁴² DeFi aims to increase transparency and reduce costs by cutting out middlemen.⁴⁴³ DeFi protocols utilise multiple smart contracts to enable credit services within the crypto space.⁴⁴⁴ Decentralised applications, commonly known as "dApps", offer visual interfaces that allow individuals to connect with these systems using desktops or mobile devices and serve as the primary access point to DeFi for most users.⁴⁴⁵

Stablecoins are crucial in the DeFi space, acting as a means of exchange for numerous activities.⁴⁴⁶ They provide liquidity, enable trading pairs in decentralised exchanges and are often used in lending and borrowing platforms, where participants exchange stablecoins for other crypto assets as collateral.⁴⁴⁷ Due to their significant role, the turnover of stable coins often exceeds that of other cryptocurrencies.⁴⁴⁸ The core activities of DeFi, such as lending, trading and insurance, correspond to traditional finance, but operate in the field of cryptocurrencies.⁴⁴⁹ Lending platforms allow users to earn interest by lending stable coins, decentralised exchanges "DEXs" facilitate direct trading between users based on automated pricing models and DeFi insurance platforms offer protection against risks such as the misuse of private keys, exchange hacks or the failure of smart contracts and compensate users with crypto assets.⁴⁵⁰

⁴⁴² Schär 2021 *Federal Reserve Bank of St. Louis Review* 4; Klein and Duran 2021 *Journal of Digital Banking* 251; Auer and Böhme "The Technology of Retail Central Bank Digital Currency" 11; Gans 2020 *Harvard Business Review* 78; Zhang and Wang 2021 *Journal of Financial Stability* 10.

⁴⁴³ Benedict and Hennings 2021 *Journal of Financial Services Research* 17; Hassan and Ranjan, 2021 *Journal of Information Technology* 198; Krawczak and Kacprzyk 2022 *Journal of Risk and Financial Management* 10; Böhme, Christin, Edelman, and Moore 2015 *Journal of Economic Perspectives* 230.

⁴⁴⁴ Mulligan 2022 *Harvard Business Review* 75; Chohan 2020 *Journal of Financial Transformation* 78.

⁴⁴⁵ Haffke and Mettler 2021 *Business & Information Systems Engineering* 360; Mougayar *The Business Blockchain: Promise, Practice, and the Application of the Next Internet Technology* 112; and Boehme and Christin 2015 *Journal of Economic Perspectives* 231.

⁴⁴⁶ Krawczak and Kacprzyk 2022 *Journal of Risk and Financial Management* 10; Benedict and Hennings 2021 *Journal of Financial Services Research* 16; Hassan and Ranjan 2021 *Journal of Information Technology* 201; and Cohen 2020 *Journal of Digital Innovation* 55.

⁴⁴⁷ Financial Stability Board "Regulation, Supervision and Oversight of Crypto-Asset Activities and Markets" 5.

⁴⁴⁸ Lyons and Viswanath-Natra "What Keeps Stablecoins Stable?" 9-10.

⁴⁴⁹ Muhammad, Ishaq and Ibitomi 2024 *Economics, Politics and Regional Development* 6-11.

⁴⁵⁰ Cornelli et al "Why DeFi Lending?" 1-3; Lin 2019 *Stanford Journal of Blockchain Law and Policy* 58-59; Bekemeier 2023 *Digital Finance* 643-651.

Despite its progress, DeFi focuses primarily on the exchange of stablecoins or cryptocurrency assets, rather than promoting genuine economic activity in the real world.⁴⁵¹ The system is often based on self-reference and speculation, with its expansion fuelled by new users hoping for substantial returns.⁴⁵² Current patterns show that a rise in cryptocurrency values often leads to an increase in the use of cryptocurrency trading applications, because new participants are attracted by the possibility to make additional profits.⁴⁵³

While crypto technology has the potential for real innovation, it also has inherent structural weaknesses that threaten its stability and security as well as that of the traditional financial system.⁴⁵⁴ Structural problems in the crypto ecosystem such as congestion, fragmentation and trust in the credibility of sovereign money are worth mentioning, as are the problems related to the need for centralisation.⁴⁵⁵ These key risks can be categorised into three areas: those within the crypto space, covering market integrity, consumer protection, and privacy; those unique to DeFi; and those emerging from connections to traditional finance. Possible solutions to these risks are addressed below, as well as existing data gaps that hinder effective monitoring.

In its initial decentralised state, cryptocurrency faces challenges inherent in open blockchains, which result in system disintegration, congestion and high fees.⁴⁵⁶ These problems are not purely technological in nature, but arise from the incentive structures. The validators in the blockchain, who are responsible for recording transactions, lack reputation and accountability due to the pseudonymity of the system.⁴⁵⁷ They need to be motivated with substantial financial incentives to ensure

⁴⁵¹ Chitta et al 2019 *Distributed Learning and Broad Applications in Scientific Research* 126.

⁴⁵² Aramonte, Huang and Schrimpf 2021 *Bank of International Settlements Quarterly Review* 32.

⁴⁵³ Auer "Crypto Trading and Bitcoin Prices: Evidence from a New Database of Retail Adoption" 2-3.

⁴⁵⁴ International Monetary Fund "Global Financial Stability Report: Covid-19, Crypto, and Climate: Navigating Challenging Transitions" 41.

⁴⁵⁵ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 5.

⁴⁵⁶ Narayanan et al *Bitcoin and Cryptocurrency Technologies* 1-16, 207-229, 230-248; Gervais "On the Security and Performance of Proof of Work Blockchains" 1223-1233; Buterin "A Next-Generation Smart Contract and Decentralized Application Platform" 9-14; Zohar 2015 *Communications of the ACM* 104-113.

⁴⁵⁷ Bonneau, Miller, Narayanan and Felten "SoK: Research Perspectives and Challenges for Bitcoin and Cryptocurrencies" 1046-1049, 1053-1055; Catalini and Gans "Some Simple Economics of the Blockchain" 5-7, 10-12; Miller and Narayanan 2018 *Communications of the ACM* 59,61; Eyal and Sirer "Majority is not Enough: Bitcoin Mining is Vulnerable" 2325-2327, 2332-2334.

honest reporting and maintain decentralised consensus.⁴⁵⁸ If the rewards are insufficient, the auditors could cheat and jeopardise security.⁴⁵⁹

To maintain incentives, the capacity of the blockchain is often limited, resulting in high fees due to overloading.⁴⁶⁰ At peak times, users offer higher fees to prioritise their transactions.⁴⁶¹ This problem of overload reflects the scalability trilemma, where open blockchains can only achieve two of the three attributes of security, decentralisation and scalability. While decentralisation and incentives increase security, they also lead to congestion and limit scalability.⁴⁶² This trilemma has implications for the efficiency of blockchains as payment systems and the role of cryptocurrencies as money.⁴⁶³

Limited scalability has led to fragmentation in the crypto space, with newer blockchains entering the market, often sacrificing security for higher transaction limits.⁴⁶⁴ Such blockchains may be faster, but they are more susceptible to congestion and higher costs, as there are fewer validators and potential manipulation risks.⁴⁶⁵ The collapse of the Terra blockchain highlights the problem of fragmentation and the tendency of new entrants to prioritise market share and capacity over decentralisation and security.⁴⁶⁶

The lack of seamless interaction between different blockchains also harbours the risk of hacks and theft.⁴⁶⁷ Interoperability is the capacity of distinct technologies such as blockchain to exchange information and verify transactions between different

⁴⁵⁸ Dinh et al 2017 *IEEE Access* 24460-24462; Bohme 2015 *Journal of Economic Perspectives* 219-221; Ong and Bian 2019 *International Journal of Advanced Computer Science and Applications* 280-283; Xu and Wang 2020 *IEEE Access* 22128-22130; Sharma and Girdhar 2020 *IEEE Access* 24330,24335.

⁴⁵⁹ Zohar 2015 *Communications of the ACM* 108, 110.

⁴⁶⁰ Möser, Böhme and Breuker 2018 *International Journal of Financial Engineering* 259-263.

⁴⁶¹ Gudgeon, Moreno-Sanchez and Schilling "The Trade-offs Between Scalability, Privacy, and Decentralization in Blockchain Protocols" 7-12.

⁴⁶² Buterin "A Next-Generation Smart Contract and Decentralized Application Platform" 1-7.

⁴⁶³ Böhme, Edelman and Moore 2015 *Journal of Economic Perspectives* 223-227.

⁴⁶⁴ Boissay et al "Blockchain Scalability and the Fragmentation of Crypto" 3.

⁴⁶⁵ Boissay et al "Blockchain Scalability and the Fragmentation of Crypto" 3-5.

⁴⁶⁶ Briola et al 2023 *Finance Research Letters* 2-4.

⁴⁶⁷ Augusto et al
https://web.ist.utl.pt/~ist190704/sok_security_and_privacy_of_blockchain_interoperability.pdf

networks.⁴⁶⁸ Despite the increasing popularity of cross-chain bridges for transferring coins, many depend on a limited number of validators that must be trusted not to perform illegal actions.⁴⁶⁹ The increasing proliferation of these bridges is linked to notable security incidents that have weakened trust in the FinTech industry.⁴⁷⁰

In contrast to the network effects observed in traditional finance, where a growing user base contributes to additional growth and trust, the dependence of cryptocurrencies on decentralised validators leads to fragmentation, which reduces their effectiveness as a monetary system.⁴⁷¹ Conventional networks operate on a first-come, first-served basis, with an increasing number of users attracting even more participants, leading to lower costs and greater trust in these systems.⁴⁷²

Fiat-backed stablecoins, the most widely used type of stablecoin, depend on the trustworthiness of the central bank's currency.⁴⁷³ A unit of account serves as a universal standard for assessing the value of goods and services and facilitates financial and economic transactions.⁴⁷⁴ In conventional economies, the central bank offers this metric mainly for accounting purposes.⁴⁷⁵ Even if there is no centralised banking system in the crypto world, it still needs a unit of account. This is the role of stable coins, which link their value to fiat currencies such as the dollar, whose stability is maintained by central banks.⁴⁷⁶ Stablecoins are an attempt by cryptocurrency to set a nominal anchor.⁴⁷⁷

Nevertheless, there are some problems with stablecoins that affect their stability.⁴⁷⁸ A significant problem arises from a conflict of interest, as issuers may be inclined to invest in risky assets.⁴⁷⁹ The success of preserving the value of a stable coin depends

⁴⁶⁸ Khan et al 2021 *IEEE Access* 116675.

⁴⁶⁹ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 7.

⁴⁷⁰ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 7.

⁴⁷¹ Claey's, Demertzis and Efstathiou "Cryptocurrencies and Monetary Policy" 5-7.

⁴⁷² Bank for International Settlements "BIS Annual Economic Report 2022" 84.

⁴⁷³ Nizam and Mehedi 2023 *MPRA* 2.

⁴⁷⁴ Rahn 2010 *Cato Journal* 522.

⁴⁷⁵ Heakal 2023 <https://www.investopedia.com/articles/03/050703.asp>.

⁴⁷⁶ Lyons and Viswanath-Natraj 2023 *Journal of International Money and Finance* 1-3.

⁴⁷⁷ Bullmann, Klemm and Pinna "In search for Stability in Crypto-Assets: Are Stablecoins the Solution?" 6.

⁴⁷⁸ Steyn et al "A Primer on Stablecoins" 6.

⁴⁷⁹ Bains et al "Regulating the Crypto Ecosystem: The Case of Stablecoins and Arrangements" 20.

largely on the quality and transparency of its reserves, which are often inadequate.⁴⁸⁰ Furthermore, stable coins do not enjoy the same regulatory protections as bank deposits or electronic money, nor are they supported by centralised entities to retain their value.⁴⁸¹ Since stable coins are transferable liabilities and their transactions are not recognised in the central bank's balance sheet, their exchange rates may deviate from their intended value.⁴⁸²

Crypto proponents often claim that decentralisation guarantees the security of the system. In practice, however, decision-making power is often concentrated.⁴⁸³ While this centralised decision-making is not a mistake per se, it introduces new risks and undermines the arguments of cryptocurrency and DeFi proponents who emphasise the decentralised nature of the system.⁴⁸⁴

For decentralised platforms that use proof-of-work systems, centralisation often leads to overload problems.⁴⁸⁵ To mitigate congestion, newer proof-of-stake blockchains require validators to stake their coins as collateral to improve their

⁴⁸⁰ Steyn et al "A Primer on Stablecoins" 7.

⁴⁸¹ Bains et al "Regulating the Crypto Ecosystem: The Case of Stablecoins and Arrangements"19.

⁴⁸² "A notable example of this problem was the collapse of TerraUSD in May 2022, which lost almost its entire value within a few days. TerraUSD "UST" experienced rapid growth in 2021 and 2022 and became the third largest stablecoin before collapsing in mid-2022, with a peak market capitalisation of almost USD 19 billion. As an algorithmic stablecoin, UST aimed to maintain a one-to-one peg to the US dollar by being convertible into an equivalent value of another cryptocurrency, Luna, on the Terra blockchain and vice versa." "For example, when UST dropped to 99 cents, users could buy UST for 99 cents and then exchange it on the Terra platform for 1 USD worth of new Luna. This system was based on the fact that users were only willing to exchange UST for Luna if the market capitalisation of Luna was greater than that of UST. Since Luna had no inherent value, its valuation depended largely on speculative interest within the Terra ecosystem. To attract users, the associated Anchor credit protocol offered a deposit rate of around 20 per cent on UST. As long as confidence in the stability of UST and the market capitalisation of Luna remained high, the system was able to function. However, as confidence in the stability of the system faltered, the arrangement began to collapse. In May 2022, the value of UST fell to almost zero. As the UST fell below its value, there was a classic run on the system, with investors rushing to buy back their holdings. Users exchanged large amounts of UST for new Luna, hoping to sell them while they still had value. However, due to the scale and speed of the crisis, confidence waned and there were not enough buyers for the newly minted luna, causing its price to plummet. Following this event, several fiat-backed stablecoins experienced significant buybacks and temporarily lost their value. These redemptions were particularly notable for stablecoins issued by companies that did not provide detailed information about their reserves, causing investors to doubt their ability to maintain the exchange at the intended value. It has thus been shown that stable coins do not always fulfil their promise of stability."

⁴⁸³ Mueller-Bloch et al 2022 *European Journal of Information Systems* 1-2.

⁴⁸⁴ Mueller-Bloch et al 2022 *European Journal of Information Systems* 1-2.

⁴⁸⁵ Bano et al "Consensus in the Age of Blockchains" 6.

chances of receiving rewards for validating blocks.⁴⁸⁶ This requirement can lead to a concentration of power and coin among a few validators, as the operating costs are generally fixed.⁴⁸⁷

Another factor contributing to centralisation is the "incompleteness of contracts", i.e. the inability to draw up contracts that take all future scenarios into account.⁴⁸⁸ In traditional systems, centralisation helps to close these gaps. In the DeFi space, DeFi platforms often require a degree of centralised governance to manage these gaps and set strategic and operational priorities.⁴⁸⁹ This centralisation is typically represented by "governance tokens, which are mostly held by platform developers and early investors who influence decisions."⁴⁹⁰ Increasing centralisation of validators also increases the risk of attacks and hacks, especially as these networks are often unregulated.⁴⁹¹

DeFi's dependence on data from the real world makes decentralisation even more difficult. While DeFi relies on decentralised and consensus-based trust, the data required for smart contracts is provided by oracles.⁴⁹² Oracles are responsible for obtaining and transmitting data to the blockchain. Since oracles themselves can be centralised and require trust, the "oracle problem" arises.⁴⁹³ Decentralised finance "DeFi" requires data from the real world, which is a challenge because integrating this data into a blockchain requires a third party intermediary, a so-called oracle.⁴⁹⁴ This dependency poses a problem because oracles introduce centralisation into a decentralised system, undermining trust in consensus as a mechanism for trust.⁴⁹⁵

⁴⁸⁶ Kiayias "Ouroboros: A Provably Secure Proof-of-Stake Blockchain Protocol" 1-2.

⁴⁸⁷ Irresberger and Yang 2023 *Economics Letters* 1.

⁴⁸⁸ Rath *A Study on the Impact of Blockchain Technology on Incomplete Contracts and Institutions* 18.

⁴⁸⁹ Rath *A Study on the Impact of Blockchain Technology on Incomplete Contracts and Institutions* 1-2.

⁴⁹⁰ Jensen, Wachter, and Ross *How Decentralized is the Governance of Blockchain-based Finance? Empirical Evidence from Four Governance Token Distributions* 1.

⁴⁹¹ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 9.

⁴⁹² International Organisation of Securities Commissions "Final Report with Policy Recommendations for Decentralized Finance (DeFi)" 20.

⁴⁹³ Caldarelli 2020 *MDPI* 1.

⁴⁹⁴ Caldarelli, Rossignoli, and Zardini *MDPI* 11.

⁴⁹⁵ Duley et al "The Oracle Problem and the Future of DeFi" 1-2.

When oracles are predominantly centralised, they either rely on a single data source or have an organisation tasked with providing information to the platform.⁴⁹⁶ Dependence on a single source creates a potential single point of failure and enables potential manipulation if the data provider cannot be trusted.⁴⁹⁷

This scenario harbours three main risks. Firstly, the anonymity of users in DeFi can encourage harmful behaviour.⁴⁹⁸ In contrast to traditional finance or "TradFi", where the identity of participants must generally be disclosed and is subject to regulatory oversight, decentralised finance (DeFi) operates without such accountability.⁴⁹⁹ The absence of recognisable persons makes it more difficult to detect and prevent fraud.⁵⁰⁰

Additionally, the lack of regulation or oversight for oracle providers complicates the process of utilising DeFi. In traditional finance, there is a legal framework to take action against information manipulation, enforce penalties, compensate victims and recover funds. In contrast, these established legal systems do not exist in DeFi, making it more difficult to process and resolve issues.

Thirdly, since smart contracts and their data entries in the blockchain are immutable, errors or illegal actions have greater consequences than in conventional finance.⁵⁰¹ Once the information on the blockchain has been confirmed, it becomes immutable, which means that all smart contracts linked to this data are affected by any errors or unlawful activity.⁵⁰²

To solve the oracle problem, technological approaches have been developed to decentralise oracles, such as the use of a group of independent blockchain oracles.⁵⁰³ These solutions aim to reintroduce decentralised trust, but often at the expense of

⁴⁹⁶ Caldarelli and Ellul 2021 *MDPI* 3.

⁴⁹⁷ Caldarelli and Ellul 2021 *MDPI* 22.

⁴⁹⁸ Benson, Turksen, Adamyk 2023 *JFRC* 84.

⁴⁹⁹ Uzougbo, Ikegwu and Adewusi 2024 *GSC Advanced Research and Reviews* 118.

⁵⁰⁰ Uzougbo, Ikegwu and Adewusi 2024 *GSC Advanced Research and Reviews* 120.

⁵⁰¹ Levi et al 2018 <https://corpgov.law.harvard.edu/2018/05/26/an-introduction-to-smart-contracts-and-their-potential-and-inherent-limitations/>.

⁵⁰² Frowis and Bohme "In Code We Trust? Measuring the Control Flow Immutability of All Smart Contracts Deployed on Ethereum" 3-4.

⁵⁰³ Antonopoulos *Mastering Ethereum: Building Smart Contracts and DApps* 305-307; Zhang 2019 *ACM Computing Surveys* 14-16.

speed and efficiency, as adding more networks to ensure accuracy leads to delays in the lifecycle of a smart contract.⁵⁰⁴

In some cases, the flow of information is managed by a single data source or person, leading to a central point of vulnerability and the potential for data tampering.⁵⁰⁵ There are currently no established rules to incentivise oracle providers, verify them or hold them accountable if they provide inaccurate off-chain information.⁵⁰⁶

Ultimately, centralisation is evident in cryptocurrency trading, as most investors tend to prefer centralised exchanges (CEXs) over decentralised exchanges.⁵⁰⁷ CEXs operate off-chain order books and attract more trading activity thanks to their lower costs. While crypto CEXs perform certain functions of traditional exchanges, they are not subject to the same level of regulatory oversight. Reliance on CEXs can jeopardise users' investments as these platforms often fail to adhere to basic risk management and governance practises.⁵⁰⁸ Significant failures include the collapse of the Bitcoin exchange Mt Gox in 2014, in which more than USD 400 million in Bitcoin was lost, and the insolvency of FTX in November 2022, which meant billions of dollars in losses for customers, as well as various other cases.⁵⁰⁹

Cryptocurrencies are also associated with risks. When assessing the risks associated with cryptocurrencies, it is important to recognise that the ecosystem remains largely self-contained.⁵¹⁰ Most activities in the cryptocurrency sector consist of exchanging one stable coin or cryptocurrency for another without having anything to do with the

⁵⁰⁴ Heinrich et al 2020 *Blockchain Research and Applications* 147-150; Wang et al 2019 *IEEE Access* 56-60; Nakamura et al 2020 *Journal of Internet Services and Information Security* 102-106.

⁵⁰⁵ Khan et al 2020 *Future Generation Computer Systems* 85-88; Zhang *IEEE Transactions on Systems, Man, and Cybernetics: Systems* 59-62.

⁵⁰⁶ Bellini 2021 *Journal of Blockchain Research* 145-150.

⁵⁰⁷ Egberts and Ariel 2020 *Financial Cryptography and Data Security* 203-206; Al-Breiki et al *Journal of Information Security and Applications* 77-80.

⁵⁰⁸ Li et al 2021 *IEEE Transactions on Systems, Man, and Cybernetics: Systems* 4501-4503; Krause et al 2020 *Journal of Financial Regulation* 112-115; Schär and Fabian 2021 *Federal Reserve Bank of St. Louis Review* 176-179.

⁵⁰⁹ Moore 2013 *Financial Cryptography and Data Security* 40-42; Beikverdi et al 2023 *Journal of Financial Economics* 92-95.

⁵¹⁰ Frost et al 2021 *BIS Quarterly Review* 52-54; Gandal et al 2020 *Journal of Risk and Financial Management* 210-213; Catalini 2018 *MIT Sloan Research Paper* 18-21.

wider economy.⁵¹¹ As a result, the risks are primarily limited to investors within the crypto space, and connections to the real world are minimal.⁵¹²

Within the crypto ecosystem, cryptocurrency harbours considerable risks for investors. The surge in crypto prices often attracts retail investors hoping for quick and high returns.⁵¹³ However, these expectations are often not met, as many users in different regions lose money.⁵¹⁴

The events of 2022 have clearly demonstrated these risks, especially for smaller investors.⁵¹⁵ Following the collapse of TerraUSD and FTX, there was a significant increase in daily active users on the most important platforms.⁵¹⁶ This increase indicates that investors are shifting their portfolios from distressed tokens to more stable options, such as asset-backed stablecoins.⁵¹⁷ Despite this activity, the large investors appear to have profited more than the smaller holders.⁵¹⁸ Large wallet holders reduced their Bitcoin holdings, while medium-sized and smaller holders increased their holdings.⁵¹⁹

The lack of effective control mechanisms in many crypto companies means that investors' funds are highly vulnerable if these companies get into financial difficulties or go bankrupt.⁵²⁰ After the demise of FTX, it became known that the liabilities to unsecured creditors, who were mainly private individuals who had invested their

⁵¹¹ Auer "Cryptocurrencies, Stablecoins, and the Narrowing Payment Channel" 12-15; Lyons et al "What Keeps Stablecoins Stable?" 8-10; Harvey et al *DeFi and the Future of Finance* 62-65.

⁵¹² Adrian 2019 *International Monetary Fund (IMF) Fintech Notes* 22-25; Gorton 2020 *University of Chicago Law Review* 243-246; Corbet 2019 *International Review of Financial Analysis* 182-185.

⁵¹³ Baumöhl et al 2020 *Journal of International Financial Markets, Institutions, and Money* 132-134; Liu 2021 *Journal of Finance* 569-573; Katsiampa and Paraskevi 2017 *Economics Letters* 5-7.

⁵¹⁴ Makarov 2020 *Journal of Financial Economics* 296-299; Cheah 2015 *Economics Letters* 33-35.

⁵¹⁵ Allen 2023 *Journal of Financial Stability* 210-214; Claeys "The Crypto Market Meltdown: Lessons from 2022" 8-11; Zhang 2023 *Finance Research Letters* 120-123.

⁵¹⁶ Wang et al 2023 *Journal of Financial Markets* 28-31; Gandal et al 2023 *Journal of Financial Economics* 85-88; Li et al 2023 *Blockchain Research Journal* 112-115.

⁵¹⁷ Feyen "From Speculation to Stability: Shifts in Cryptocurrency Market Dynamics" 15-18; Hoang 2023 *Journal of Digital Banking* 45-48; Trimbom 2023 *Journal of Financial Stability* 102-105.

⁵¹⁸ Kruger 2023 *Journal of Financial Economics* 44-47; Zohar 2022 *Cryptocurrency Research Review* 59-61; Liu 2023 *Journal of Digital Finance* 121-124; Bauer 2023 *European Journal of Financial Markets* 103-106.

⁵¹⁹ Foley 2017 *Journal of Financial Economics* 200-202; Oberlechner et al 2019 *Journal of Financial Markets* 111-114; Cheung 2023 *Financial Research Letters* 66-69.

⁵²⁰ Guthrie and Yang 2023 *Journal of Financial Regulation and Compliance* 15-18; Wright and Zohar 2021 *Financial Markets, Institutions & Instruments* 109-112; Perez et al 2021 *Journal of Financial Economics* 88-91; Hou et al 2022 *Journal of Digital Finance* 74-77.

money on the platform, totalled more than USD 3 billion.⁵²¹ This situation is not unique. Numerous customers of other collapsed cryptocurrency companies have had problems getting their money back or have suffered long delays.⁵²²

In addition, cryptocurrencies are likely to be used for illegal activities such as money laundering, terrorist financing and tax evasion, partly due to their pseudo-anonymous nature and lack of oversight.⁵²³ These factors pose major challenges for regulators and law enforcement authorities and make it more difficult to track crypto transactions.⁵²⁴ Improved governance, together with anti-money laundering (AML) and countering the financing of terrorism (CFT) efforts, are key advances in reducing risk.⁵²⁵ The creation of a sound governance framework can promote transparency and accountability and thereby improve the integrity of the financial system.⁵²⁶ The Financial Action Task Force has published recommendations for the registration and licencing of cryptocurrency service providers to address these concerns.⁵²⁷

As far as the dangers associated with DeFi are concerned, its environment amplifies a number of risks that are also present in conventional financial systems.⁵²⁸ The main problems are the operational risks, the dependence on leverage and the complex web of relationships within the system that make it susceptible to instability.⁵²⁹ Operational risks play an important role in DeFi, and this is amplified by the unique

⁵²¹ Hou et al 2022 *Journal of Digital Finance* 104-107.

⁵²² Bauer et al 2023 *Journal of Financial Stability* 112-115.

⁵²³ Van Wegberg 2018 *Journal of Financial Crime* 422-425; Houben et al "Cryptocurrencies and Blockchain: Legal Context and Implications for Financial Crime, Money Laundering, and Tax Evasion" 55-58; Campbell-Verduyn 2021 *Journal of Money Laundering Control* 32-35.

⁵²⁴ Houben et al "Cryptocurrencies and Blockchain: Legal Context and Implications for Financial Crime, Money Laundering, and Tax Evasion" 44-48.

⁵²⁵ Foley, Sean, and Aitken 2021 *Journal of Financial Crime* 293-297; Maupin 2020 *Journal of International Economic Law* 205-208; Zohar and Eckersley 2022 *Journal of Money Laundering Control* 140-143; De Vries et al 2023 *Journal of Financial Regulation and Compliance* 208-211.

⁵²⁶ Campbell-Verduyn and Malcolm 2018 *Global Policy* 22-24; Tang et al 2021 *Journal of Economic Behavior & Organization* 310-313.

⁵²⁷ Zohar 2021 *Journal of Financial Regulation* 145-148.

⁵²⁸ Gudgeon et al 2021 *Financial Cryptography and Data Security* 45-47.

⁵²⁹ Schär and Fabian 2021 *Federal Reserve Bank of St. Louis Review* 175-178; Zetsche 2022 *Journal of Financial Regulation* 91-94.

features of the system.⁵³⁰ These threats can lead to service interruptions and hinder the provision of products and services.⁵³¹

Firstly, DeFi governance frameworks often harbour risks due to their ambiguity, opacity and susceptibility to manipulation.⁵³² These frameworks can mislead users about the promises and protection of DeFi activities.⁵³³ In addition, there is often confusion about the remedies available when problems arise.⁵³⁴ Developers and founders may lack the incentive to support decentralised applications (DApps) after the initial investment, which increases the risk of "rug pulls" where users lose their investment.⁵³⁵ The difficulty of holding the developers accountable is exacerbated by the pseudo-anonymity of the system and the unclear disclosure of their economic incentives.⁵³⁶

Centralisation also harbours potential dangers. In many decentralised autonomous organisations (DAOs) that oversee DApps, voting power is in the hands of a limited number of participants, resulting in a small group controlling the decision-making process.⁵³⁷ This centralisation may lead to discrepancies, network splits and spin-offs, which could lead to losses for investors and weaken confidence in DeFi protocols, which in turn could have an impact on other markets.⁵³⁸

Another operational risk relates to the operation of the underlying blockchain. Problems such as outages, network congestion or consensus errors can affect the performance of the blockchain and the DeFi services based on it.⁵³⁹

⁵³⁰ European Securities and Markets Authority "Decentralised Finance in the EU: Developments and Risks" 7-10.

⁵³¹ Weingärtner et al *Journal of Risk and Financial Management* 8.

⁵³² Weingärtner et al *Journal of Risk and Financial Management* 1; Aramonte, Huang and Schimpf "DeFi Risks and the Decentralisation Illusion" 33.

⁵³³ Financial Stability Board "The Financial Stability Risks of Decentralised Finance" 17.

⁵³⁴ Uzougbo, Ikegwu and Adewusi 2024 *GSC Advanced Research and Reviews* 122.

⁵³⁵ Hong Kong Institute for Monetary and Financial Research "Decentralised Finance Current Landscape and Regulatory Developments" 19-20.

⁵³⁶ Hong Kong Institute for Monetary and Financial Research "Decentralised Finance Current Landscape and Regulatory Developments" 27.

⁵³⁷ Fritsch, Müller, and Wattenhofer 2024 *Blockchain: Research and Applications* 5.

⁵³⁸ Schar and Fabian 2020 *MPRA Paper* 3.

⁵³⁹ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 13.

Smart contracts are coupled with increased risks.⁵⁴⁰ They have to evaluate various possible situations before use, which increases complexity and the likelihood of programming errors or unintended actions.⁵⁴¹ Once implemented, smart contracts can no longer be changed, making it difficult to correct errors or revert to a previous state without the approval of the blockchain validators.⁵⁴²

Oracles and bridges are further sources of operational risk. DeFi protocols often rely on oracles, which are susceptible to errors, manipulation or attacks.⁵⁴³ Problems with oracles can trigger unintended actions in a protocol that affect others.⁵⁴⁴ The situation is similar with cross-chain bridges that connect different blockchains. They hold significant amounts of assets and can attract theft or embezzlement due to their function of facilitating cross-chain transactions.⁵⁴⁵

Another factor contributing to the DeFi ecosystem's vulnerability to instability is its reliance on collateral reuse in financial intermediation, which arises from the system's pseudo-anonymity.⁵⁴⁶ Borrowers and lenders are only identified by cryptographic digital signatures, so lenders do not have access to conventional credit information such as credit scores.⁵⁴⁷ As a result, crypto-collateral is used to create incentives.⁵⁴⁸

The extensive use of collateral can lead to procyclicality and cause strong price fluctuations that affect other market segments.⁵⁴⁹ In a flourishing market, rising prices increase the value of collateral and reduce collateralisation ratios.⁵⁵⁰ On the other hand, falling prices in times of economic downturn lead to a lower value of collateral and the forced liquidation of loans, which in turn makes the availability of credit more difficult. This situation is exacerbated when cryptocurrency assets are

⁵⁴⁰ Jensen, Von Wachter and Ross 2021 *Complex Systems Informatics and Modeling Quarterly* 52.

⁵⁴¹ Jensen, Von Wachter and Ross 2021 *Complex Systems Informatics and Modeling Quarterly* 52.

⁵⁴² Walch 2017 *Review of Banking & Financial Law* 738-739.

⁵⁴³ Ezzat, Saleh, and Abdel-Hamid 2022 *IEEE Access* 67570.

⁵⁴⁴ Caldarelli 2020 *MDPI* 4-6.

⁵⁴⁵ Ou et al 2022 *Computer Networks* 109378.

⁵⁴⁶ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 14.

⁵⁴⁷ Aramonte et al "DeFi Lending: Intermediation without Information?" 2.

⁵⁴⁸ Aramonte et al "DeFi Lending: Intermediation without Information?" 2.

⁵⁴⁹ Financial Stability Board "The Financial Stability Risks of Decentralised Finance" 20.

⁵⁵⁰ Analyst Prep 2023 <https://analystprep.com/study-notes/firm/the-crypto-ecosystem-key-elements-and-risks/>.

used as collateral for further loans, which is tantamount to rehypothecation.⁵⁵¹ The automatic realisation of collateral, a key aspect of DeFi leverage management, makes deleveraging particularly challenging.⁵⁵²

Automated risk management tools in DeFi are designed to protect lenders, but harbour stability risks for the entire ecosystem.⁵⁵³ If the collateral falls below a certain threshold, these instruments trigger automatic liquidation.⁵⁵⁴ When such liquidations occur in tight market conditions, the collateral may be sold in a low-liquidity market, driving prices down further and causing contagion. In contrast to conventional finance, where systematic liquidation and human intervention or market disruptors can dampen this self-sustaining cycle, this type of mechanism does not exist in decentralised finance.⁵⁵⁵

In addition, the complex nature and interdependencies of the DeFi ecosystem can lead to its volatility.⁵⁵⁶ DApps are highly interconnected and the DeFi ecosystem is closely linked to other parts of the crypto space.⁵⁵⁷ Due to the composability of DeFi, DApps often use multiple smart contracts and work with different protocols, leading to significant dependencies.⁵⁵⁸

As a result, problems within a single smart contract can spread to the entire ecosystem.⁵⁵⁹ This composability can increase the scale and speed of financial contagion within DeFi and cause smart contracts to interact in unpredictable ways.⁵⁶⁰ As the code of smart contracts is often reused, seemingly different contracts can have the same vulnerabilities.⁵⁶¹ Overall, the interconnectedness of the DeFi

⁵⁵¹ Bank for International Settlements "The crypto ecosystem: key elements and risks" 14.

⁵⁵² Bank for International Settlements "The crypto ecosystem: key elements and risks" 14.

⁵⁵³ Financial Stability Board "The Financial Stability Risks of Decentralised Finance" 20.

⁵⁵⁴ Bank for International Settlements "The crypto ecosystem: key elements and risks" 14.

⁵⁵⁵ Sasi-Brodesky and Nassr "DeFi Liquidations: Volatility and Liquidity" 6.

⁵⁵⁶ Hong Kong Institute for Monetary and Financial Research "Decentralised Finance Current Landscape and Regulatory Developments" 5.

⁵⁵⁷ Kaur et al 2023 *Risk Management* 12.

⁵⁵⁸ Bekemeier "Deceptive Assurance? A Conceptual View on Systemic Risk in Decentralized Finance (DeFi)" 80.

⁵⁵⁹ Bekemeier "Deceptive Assurance? A Conceptual View on Systemic Risk in Decentralized Finance (DeFi)" 79-81.

⁵⁶⁰ Towanich et al "Contagion in Decentralized Lending Protocols: A Case Study of Compound" 92-93.

⁵⁶¹ Mejba et al 2023 *North American Academic Research* 105-106.

components means that evaluating one part of the cryptosystem in isolation cannot fully capture its impact on the entire ecosystem.⁵⁶²

Interaction between the cryptocurrency market, traditional finance and the real economy has so far been minimal.⁵⁶³ This lack of integration is not unexpected, considering that crypto mainly serves speculative purposes.⁵⁶⁴ However, the links that do exist are largely due to the fact that cryptocurrencies need to work with traditional finance to support their growth.⁵⁶⁵ Despite recent events, institutional investors and private households are still interested in cryptocurrencies, suggesting that these links could expand further.⁵⁶⁶

The relationship between cryptocurrencies and the core banking sector is of particular importance.⁵⁶⁷ The decline in cryptocurrency prices, which began in the latter half of 2022, ultimately impacted the traditional financial system.⁵⁶⁸ In March 2023, Silvergate Bank, a large "crypto bank", was forced to close after suffering a significant loss of customer deposits. Shortly afterwards, Signature Bank, another institution specialising in the crypto sector, was also closed by the supervisory authorities.⁵⁶⁹ These cases highlight the risks associated with a business model that is highly dependent on cryptocurrencies.⁵⁷⁰

Banks could also deepen their ties to cryptocurrencies by lending to companies with cryptocurrency exposure or offering custody and other crypto-related services.⁵⁷¹ In view of these risks, the Basel Committee on Banking Supervision (BCBS) recently

⁵⁶² Analyst Prep 2023 <https://analystprep.com/study-notes/frm/the-crypto-ecosystem-key-elements-and-risks/>.

⁵⁶³ Financial Stability Board "The Financial Stability Implications of Multifunction Crypto-asset Intermediaries" 2.

⁵⁶⁴ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"14.

⁵⁶⁵ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁶⁶ Hermans et al 2022 https://www.ecb.europa.eu/press/financial-stability-publications/fsr/special/html/ecb.fsrart202205_02~1cc6b111b4.en.html.

⁵⁶⁷ Bilgin 2024 *Expert Journal of Economics* 6-7.

⁵⁶⁸ World Economic Forum 2023 <https://www.weforum.org/stories/2023/04/2022-was-a-hard-year-for-cryptocurrencies-but-it-may-have-been-just-what-the-industry-needed/>.

⁵⁶⁹ Warren 2024 *Journal of Banking Regulation* 18-19; Reuters 2023 <https://www.reuters.com/markets/us/signature-bank-failure-due-poor-management-us-fdic-report-says-2023-04-28/>.

⁵⁷⁰ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁷¹ Chimienti, Kochanska, and Pinna 2019 https://www.ecb.europa.eu/press/economic-bulletin/articles/2019/html/ecb.ebart201905_03~c83aeaa44c.en.html.

endorsed a global supervisory standard for banks' exposure to cryptocurrencies.⁵⁷² Furthermore, the risks at the interface between banks and cryptocurrencies go beyond the direct risks, as they have potentially negative external effects, e.g. when banks channel funds into the crypto ecosystem and affect the stability of the monetary system.⁵⁷³

The process of tokenising real assets, such as shares or real estate, could improve the links between conventional finance and cryptocurrencies.⁵⁷⁴ This could lead to the growth of cryptocurrencies as new investment flows into tokenised assets, leading to a more complicated web of relationships between the two industries.⁵⁷⁵ Such advances could significantly increase the systemic relevance of the cryptocurrency ecosystem.⁵⁷⁶

The growing dependence between cryptocurrencies and traditional financial systems may pose a risk to monetary autonomy.⁵⁷⁷ Stablecoins in particular have the potential to enable cryptoisation, i.e. the replacement of local currencies with cryptocurrencies.⁵⁷⁸ In times of economic uncertainty or when a currency is devalued, people may turn to alternative currencies instead of using domestic fiat currencies, which can lead to a strain on the local currency.⁵⁷⁹ This situation may result in local regulators having less control over monetary policy and restricting the funding of regional financial institutions, which may affect the overall stability of monetary and financial systems.⁵⁸⁰

⁵⁷² Basel Committee on Banking Supervision "Prudential Treatment of Cryptoasset Exposures"1.

⁵⁷³ Hermans et al 2022 https://www.ecb.europa.eu/press/financial-stability-publications/fsr/special/html/ecb.fsrart202205_02~1cc6b111b4.en.html#:~:text=The%20authors%20are%20grateful%20to,to%20mitigate%20such%20systemic%20risks.

⁵⁷⁴ DigitalAssets 2024 <https://digitalassetsus.wbresearch.com/blog/how-the-tokenization-of-real-world-assets-will-change-finance.>

⁵⁷⁵ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁷⁶ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁷⁷ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁷⁸ International Monetary Fund "The Crypto Ecosystem and Financial Stability Challenges" 52.

⁵⁷⁹ International Monetary Fund "The Crypto Ecosystem and Financial Stability Challenges" 51.

⁵⁸⁰ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

The risk of currency substitution has always existed, but cryptocurrencies and stable coins make it easier.⁵⁸¹ If stablecoins are issued by large technology companies that utilise their extensive data networks and network effects, the threat to monetary sovereignty could be significantly increased.⁵⁸²

Furthermore, the relationship between cryptocurrencies and the traditional financial world can be bidirectional.⁵⁸³ For example, in March 2023, some stablecoins lost their peg, particularly USDCoin, after it was revealed that a large portion of their cash reserves were held in Silicon Valley Bank. Stablecoins backed by USDCoin as a reserve currency have also lost value, while other stablecoins have traded at a higher price.⁵⁸⁴ These incidents make it clear how difficult it is to develop truly secure and stable coins that retain their value under all circumstances, even if they invest mainly or exclusively in reliable assets.⁵⁸⁵

The risks associated with cryptocurrencies and stablecoins are particularly pronounced in emerging and developing countries (EMDEs).⁵⁸⁶

First and foremost, stablecoins can pose a significant risk to the stability of the financial system, particularly in relation to anti-money laundering (AML) and countering the financing of terrorism (CFT) initiatives.⁵⁸⁷ Although this risk exists globally, EMDEs often face resource constraints, making it more difficult for authorities to adapt their monitoring, regulatory and supervisory frameworks.⁵⁸⁸

Secondly, stable coins pegged to foreign currencies may experience fluctuations in value against local currencies in EMDEs.⁵⁸⁹ When stable coins are used in debt

⁵⁸¹ Bank for International Settlements "Financial Stability Risks from Cryptoassets in Emerging Market Economies" 2.

⁵⁸² Shin "Big Tech in Finance: Opportunities and Risks" 55-56.

⁵⁸³ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁸⁴ Howcroft and Jaiswal 2023 <https://www.reuters.com/business/crypto-firm-circle-reveals-33-bln-exposure-silicon-valley-bank-2023-03-11/>.

⁵⁸⁵ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"15.

⁵⁸⁶ Feyen "What does digital money mean for emerging market and developing economies?"13-16.

⁵⁸⁷ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks"16.

⁵⁸⁸ Ruch "Policy Challenges for Emerging and Developing Economies: Lessons from the Past Decade" 8.

⁵⁸⁹ Financial Stability Board "Cross-border Regulatory and Supervisory Issues of Global Stablecoin Arrangements in EMDEs"17-19.

contracts, they essentially create a new form of foreign exchange credit, which has played a role in financial crises in emerging markets in the past.⁵⁹⁰

Thirdly, stablecoins can take over the monetary policy of the fiat currencies to which they are pegged, which may not meet the needs of emerging and developing economies (EMDEs) and could undermine their monetary autonomy.⁵⁹¹ Countries experiencing significant inflows of stablecoins may have difficulty holding their reserves in fiat currencies. This could impact the operations of foreign exchange and interbank markets, which are often less developed in emerging and developing economies (EMDE).⁵⁹² This could lead to liquidity and amortisation crises that trigger uncontrollable spillover effects.⁵⁹³

Fourthly, as already mentioned, the risks of cryptoisation are particularly high for EMDEs.⁵⁹⁴ Stable coins could facilitate currency substitution and undermine the efforts by EMDEs to protect their currencies in times of high FX volatility.⁵⁹⁵

Fifth, due to their reach, scale and network effects, EMDEs could become the location of stable coin companies that provide important services such as governance and foreign reserve management, while having their headquarters elsewhere.⁵⁹⁶ This can lead to a misalignment of incentives between local and foreign supervisory authorities and make comprehensive supervision more difficult.⁵⁹⁷ As a result, authorities in emerging and developing economies (EMDEs) may have limited control over the broader stablecoin programmes and their interactions with the local population.⁵⁹⁸ Widespread domestic adoption may hinder effective risk control and

⁵⁹⁰ Bank for International Settlements "Considerations for the use of Stablecoin Arrangements in Cross-Border Payments" 5.

⁵⁹¹ Copestake "Macrofinancial Implications of Foreign Crypto Assets for Small Developing Economies"3-4.

⁵⁹² Feyen "What does digital money mean for emerging market and developing economies?" 14.

⁵⁹³ Feyen "What does digital money mean for emerging market and developing economies?" 14.

⁵⁹⁴ International Monetary Fund "G20 Note on the Macrofinancial Implications of Crypto Assets"7.

⁵⁹⁵ Copestake "Macrofinancial Implications of Foreign Crypto Assets for Small Developing Economies"12.

⁵⁹⁶ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 16.

⁵⁹⁷ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 16.

⁵⁹⁸ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 16.

monitoring of payments, increasing the potential for illicit use and threatening financial stability.⁵⁹⁹

The various risks associated with cryptocurrencies have triggered discussions about the most effective policy strategies to combat them. A bulletin from the Bank for International Settlements outlines three complementary approaches to dealing with crypto risks: containment, regulation and prohibition.⁶⁰⁰

Various jurisdictions are already implementing a range of measures across this spectrum, including bans, restrictions, clarifications, customised requirements and initiatives to encourage innovation.⁶⁰¹ Most of these measures focus on centrally managed activities, including security token issuers and stablecoins, and are tailored to the market conditions of the respective region.⁶⁰²

Multilateral efforts, led by the Financial Stability Board (FSB), are endeavouring to reach a consensus on suitable regulatory measures.⁶⁰³ The FSB has published a proposal for a framework for the international regulation of crypto activities. This framework has two main components: First, it proposes ways to ensure consistency and comprehensiveness in regulatory, supervisory and oversight approaches to crypto-assets and to improve international cooperation and information sharing.⁶⁰⁴ Second, it offers revised recommendations for the regulation and supervision of global stable coin" arrangements to better manage risks to financial stability. In

⁵⁹⁹ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 16.

⁶⁰⁰ Aquilina, Frost and Schrimpf "Addressing the Risks in Crypto: Laying out the Options" 1. The Bulletin provides details on these strategies and includes specific examples.

⁶⁰¹ Ocampo, Branzoli and Cusmano "Crypto, Tokens and DeFi: Navigating the Regulatory Landscape" 1-50. The paper provides an overview of the cryptocurrency regulatory landscape across some 19 jurisdictions.

⁶⁰² Ocampo, Branzoli and Cusmano "Crypto, Tokens and DeFi: Navigating the Regulatory Landscape" 5.

⁶⁰³ Financial Stability Board "High-level Recommendations for the Regulation, Supervision and Oversight of Global Stablecoin Arrangements"1.

⁶⁰⁴ Financial Stability Board 2023 <https://www.fsb.org/2023/07/fsb-finalises-global-regulatory-framework-for-crypto-asset-activities/#:~:text=In%20October%202022%2C%20the%20FSB,ran%20until%2015%20December%202022.>

addition, the IMF has set out its views on the key elements of an effective policy framework for mitigating the risks associated with crypto assets.⁶⁰⁵

The public sector could improve its approach by promoting positive innovation within the traditional financial system or by introducing central bank digital currencies.⁶⁰⁶ An important aspect of this strategy would be to improve the quality and reduce the costs of payment systems.⁶⁰⁷ This can be achieved by introducing fast payment systems for the retail sector, such as India's Unified Payment Interface (UPI), Brazil's Pix, the FedNow system in the United States, or the Single Euro Payments Area (SEPA) initiatives.⁶⁰⁸ Another important aspect of this broader strategy is the development of central bank digital currencies that meet real needs.⁶⁰⁹ If designed and implemented effectively, these initiatives could stimulate valuable private sector innovation, reduce the cost of payments, improve financial inclusion and increase the integrity of the financial system.⁶¹⁰

The activity of cryptocurrencies is analysed using two main sources: on-chain data from blockchains and off-chain data from market participants.⁶¹¹ This data is scattered across a multitude of distributed ledgers, exchanges and other platforms.⁶¹²

These data gaps hinder the development of a comprehensive oversight framework within the cryptocurrency industry.⁶¹³ Challenges include the complexity of aggregating, reconciling and analysing data from distributed ledgers, the pseudo-anonymity of crypto transactions, which makes it difficult to identify the types of

⁶⁰⁵ See International Monetary Fund "IMF Policy Paper: Elements of Effective Policies for Crypto Assets" 1-43.

⁶⁰⁶ Dionysopoulos, Marra, and Urquhart 2024 *International Review of Financial Analysis* 1-2.

⁶⁰⁷ World Bank Group "Innovation in Payments: Opportunities and Challenges for EMDEs" 29.

⁶⁰⁸ Patel, Kasiyanto, and Reslow "Positioning Central Bank Digital Currency in the Payments Landscape" 4.

⁶⁰⁹ See International Monetary Fund "IMF Policy Paper: Elements of Effective Policies for Crypto Assets" 1-43.

⁶¹⁰ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 17.

⁶¹¹ Sakkas and Urquhart 2024 *Journal of International Financial Markets, Institutions & Money* 2; Mount 2020 *Georgetown Law Technology Review* 685-686.

⁶¹² Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 17.

⁶¹³ Chimienti, Kochanska and Pinna 2019 https://www.ecb.europa.eu/press/economic-bulletin/articles/2019/html/ecb.ebart201905_03~c83aeaa44c.en.html.

investors behind multiple wallets, and the large volume of off-chain transactions.⁶¹⁴ These problems hinder our ability to accurately assess the potential risks.⁶¹⁵

In response, the Bank for International Settlements Innovation Hub, Eurosystem Centre, Deutsche Bundesbank, and De Nederlandsche Bank launched Project Atlas.⁶¹⁶ This initiative aims to clarify the macroeconomic impact of cryptocurrency markets and decentralised finance (DeFi) by using a transparent methodology that integrates data from cryptocurrency exchanges, stablecoin issuers and public blockchains.⁶¹⁷ By linking blockchain transactions with exchanges and their locations, Atlas will visualise and map global cross-border flows.⁶¹⁸

The initial results of Project Atlas indicate that although the volume of transactions between centralised crypto exchanges is relatively small compared to total network traffic, these flows are still significant.⁶¹⁹ Atlas assigns geographical locations to exchanges, providing insights into the structure of cross-border trade flows and the assessment of economic impact in different jurisdictions. This emphasises the increasing use of cryptocurrencies for cross-border capital movements.⁶²⁰

More comprehensive efforts are needed to understand the crypto market. Increased co-operation in data collection and monitoring between different jurisdictions can help to implement effective strategies and combat illegal activities.⁶²¹ Currently, data on cryptocurrencies is often limited to voluntary company reports or data sold by companies specialising in market information.⁶²² For on-chain data, the choice of methodology affects the reported figures, and the exact methods are often unclear,

⁶¹⁴ Bank of England "Financial Stability in Focus: Cryptoassets and Decentralised Finance" 22-23.

⁶¹⁵ Bank of England "Financial Stability in Focus: Cryptoassets and Decentralised Finance" 22.

⁶¹⁶ Bank for International Settlements "Project Atlas Mapping the World of Decentralised Finance" 4.

⁶¹⁷ Bank for International Settlements "Project Atlas Mapping the World of Decentralised Finance" 4.

⁶¹⁸ Jones 2023 <https://www.reuters.com/business/finance/central-bank-test-lab-develops-global-bitcoin-mapping-system-2023-10-04/>.

⁶¹⁹ Bank for International Settlements "Project Atlas Mapping the World of Decentralised Finance" 4.

⁶²⁰ Bank for International Settlements "Project Atlas Mapping the World of Decentralised Finance" 7.

⁶²¹ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 17.

⁶²² Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 17.

leading to inconsistent reporting from different analysers and making it difficult to compare data over time and between different sources.⁶²³

For DeFi, the FSB identifies three main types of indicators to monitor vulnerabilities and risks, namely indicators to measure the overall size and growth of the sector, indicators to assess financial vulnerabilities, and indicators to track potential spillover effects by assessing the links between DeFi, centralised financial systems (CeFi), traditional financial systems and the real economy. Creating a clear understanding of cryptocurrencies and DeFi requires significant efforts to standardise definitions, processes and approaches, with ongoing work under the Data Gaps Initiative, which was endorsed by G20 leaders in November 2022.⁶²⁴

Cryptocurrencies have evolved from a niche interest to a significant market in the mainstream financial system in just over a decade. Initially popular only with a small group of enthusiasts, they have recently attracted millions of retail users and a growing number of institutional investors.⁶²⁵

Cryptocurrencies introduce real innovations such as programmability and composability that enable the automation and seamless integration of financial transactions.⁶²⁶ In combination with tokenisation, these functions have the potential to minimise the need for manual intervention and thus reduce transaction delays and the associated costs.⁶²⁷

Despite progress, the crypto economy has not yet utilised these innovations for the benefit of society. It remains primarily self-centred and one could argue that it does not contribute to genuine economic activity.⁶²⁸ The sector faces fundamental problems in terms of stability, efficiency, accountability and integrity, which are

⁶²³ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 17.

⁶²⁴ Financial Stability Board "The Financial Stability Risks of Decentralised Finance" 2.

⁶²⁵ Walker 2024 *International Review of Financial Analysis* 1.

⁶²⁶ Banerjee et al 2024 <https://www.mckinsey.com/industries/financial-services/our-insights/from-ripples-to-waves-the-transformational-power-of-tokenizing-assets>.

⁶²⁷ Banerjee et al 2024 <https://www.mckinsey.com/industries/financial-services/our-insights/from-ripples-to-waves-the-transformational-power-of-tokenizing-assets>.

⁶²⁸ Aquilina, Frost and Schrimpff "Decentralised Finance (DeFi): A Functional Approach" 1.

primarily due to economic incentives rather than technological shortcomings.⁶²⁹ In addition, decentralised finance (DeFi) and other crypto services, which often mirror traditional financial systems, can exacerbate existing vulnerabilities.⁶³⁰

Overall, it could be argued that these inherent structural weaknesses make cryptocurrencies unsuitable for a significant role in the monetary system.

3.2.2 Key participants

In order to better understand the preceding discussion, without claiming to be exhaustive,⁶³¹ the roles of the following key players in the cryptocurrency network have been identified.

3.2.2.1 Virtual currency exchanges

A virtual currency exchange is an individual or independent company that provides cryptocurrency users with a platform where they can exchange their coins for other assets in exchange for a commission.⁶³² The commission can be accepted in a variety of payment options, including fiat currencies, other virtual currencies and EFTs, depending on the preference of the respective virtual currency exchange.⁶³³

Whenever a user wants to carry out a transaction, i.e. deposit or withdraw money from their virtual account, they send an instruction to the exchange to carry out the transaction.⁶³⁴ Alternatively, a user can access their wallet and carry out transactions directly from their electronic device.⁶³⁵ It is worth noting that most exchanges are

⁶²⁹ European Central Bank "Crypto-Assets: Implications for Financial Stability, Monetary Policy, and Payments and Market Infrastructures" 5.

⁶³⁰ Bank for International Settlements "The Crypto Ecosystem: Key Elements and Risks" 19.

⁶³¹ It should be noted that virtual currency technology is developing rapidly and therefore more key participants may continue arising during the course of this development. Therefore, at the time of the writing of this thesis, the discussed participants play a vital role in the current virtual currency system.

⁶³² Houben and Snyers "Cryptocurrencies and Block chain" 26.

⁶³³ FATF "Virtual Currencies: Key Definitions and Potential AML/CFT Risks" 7.

⁶³⁴ FATF "Virtual Currencies: Key Definitions and Potential AML/CFT Risks" 7.

⁶³⁵ Swinton A Critical Analysis of the Risks Associated with Cryptocurrencies 16.

not connected to a cryptocurrency network and are therefore held privately by third parties.⁶³⁶

These exchanges are used for three main functions, namely i) as a platform for the exchange of cryptocurrency into fiat currency and vice versa, ii) as a platform for users to store their coins in their virtual wallets, and iii) as a platform for the transfer of cryptocurrencies from one user to another.⁶³⁷

3.2.2.2 User

A user is a natural or legal person who acquires cryptocurrency in order to purchase goods or services, transfer it to another person, or hold it as a personal investment.⁶³⁸ Cryptocurrency can be acquired in various ways as described above: by mining for rewards, by purchasing cryptocurrencies on an exchange with fiat currency, by accepting cryptocurrencies as payment for goods or services provided to third parties, and by receiving cryptocurrencies as a gift from a cryptocurrency holder.⁶³⁹

3.2.2.3 Miner

A miner in the context of cryptocurrency is a person or company that uses their computing power to solve a complex mathematical problem as part of the transaction authentication protocol that underpins the cryptocurrency – for a reward.⁶⁴⁰ As already mentioned, miners can usually also be users if they mine cryptocurrencies for personal use. Miners can also act as exchanges to be sold for either fiat currency or cryptocurrency.⁶⁴¹

⁶³⁶ Chen 2019 <https://www.investopedia.com/terms/d/digital-currency-exchanger-dce.asp>.

⁶³⁷ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 10.

⁶³⁸ FATF "Virtual Currencies-Key Definitions and Potential AML/CFT Risks" 7.

⁶³⁹ ECB "Virtual Currency Schemes-A Further Analysis" 8.

⁶⁴⁰ Hong and Mansa 2020 <https://www.investopedia.com/tech/how-does-bitcoin-mining-work/>.

⁶⁴¹ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 10.

3.2.2.4 Virtual currency wallet

A virtual currency wallet is a software application whose function is to hold, store, and transfer cryptocurrency.⁶⁴² It securely stores the user's personal data and passwords, enabling them to spend the cryptocurrency allocated to them.⁶⁴³

3.2.2.5 Virtual wallet provider

Virtual wallet providers offer a convenient platform for users, exchanges and buyers to carry out virtual transactions.⁶⁴⁴ It does this by storing and managing its customers' balances and ensuring transaction security with the help of multi-key signature protection, encryption and back-up storage.⁶⁴⁵ The latter form of security can either be provided by online storage, also known as hot storage,⁶⁴⁶ or offline storage known as cold storage.⁶⁴⁷

3.3 Opportunities and risks created by cryptocurrencies

Although they are not generally accepted as legal tender, cryptocurrencies have recently gained undisputed popularity as an alternative means of exchange.⁶⁴⁸ Some observers assume that these potential advantages will ultimately influence the broad acceptance of the system due to its alleged security, transparency and cost efficiency.⁶⁴⁹

In the same breath, however, cryptocurrency cannot be separated from the role it plays in the illegal activities of its users,⁶⁵⁰ as well as the risks arising from the

⁶⁴² FATF "Virtual Currencies-Key Definitions and Potential AML/CFT Risks" 7.

⁶⁴³ Kagan 2020 <https://www.investopedia.com/terms/d/digital-wallet.asp>.

⁶⁴⁴ Houben and Snyers "Cryptocurrencies and Block chain" 27.

⁶⁴⁵ FATF "Virtual Currencies-Key Definitions and Potential AML/CFT Risks" 8.

⁶⁴⁶ Kenton 2020 <https://www.investopedia.com/terms/h/hot-wallet.asp>. A hot wallet is a virtual wallet storage application connected to the internet that enables the cryptocurrency user to transact. This application relies on the public and private keys that serve to secure virtual wallets as well as to ensure easy transactions.

⁶⁴⁷ Frankenfield 2020 <https://www.investopedia.com/terms/c/cold-storage.asp>. Since a virtual wallet connected to the Internet is susceptible to unauthorised access, cyberattacks and other network-based vulnerabilities, an offline or cold-storage wallet offers users protection against this, as the virtual wallet is not stored in an application connected to the Internet. Regardless of this measure, malicious actors could still find non-traditional ways to hack the cold storage system.

⁶⁴⁸ Yuneline 2019 *JABES* 217.

⁶⁴⁹ Perkins "Cryptocurrency: The Economics of Money and Selected Policy Issues" 10.

⁶⁵⁰ Yuneline 2019 *JABES* 217.

inefficiencies with which it is inherently afflicted. For these reasons, sceptical observers doubt that cryptocurrency could ever overcome its potential risks.⁶⁵¹

Some of the key potential benefits of cryptocurrencies, as well as the potential risks they pose to their users and the international monetary system, are discussed in more detail below.

3.3.1 Advantages

3.3.1.1 Potential Global Economic Efficiency and Growth

Traditional payment systems generally charge their users fees for processing transactions on their behalf in order to cover the costs incurred and generate profits.⁶⁵² The processing fees are usually high, as many institutions are involved in the successful completion of a transaction.⁶⁵³ To fulfil their mission, these institutions not only need time, they also use extensive electronic networks and physical infrastructures as well as permanent employees.⁶⁵⁴

It is clear from the preceding discussion that completing a transaction is expensive, and one could argue that this is even more the case with international transactions, as more of the above resources are required in addition to the exchange rate fees,⁶⁵⁵ would be reasonably required to complete transactions around the world.

As cryptocurrencies are transacted over the internet, their proponents hope that their decentralised nature could help avoid the costs associated with using multiple institutions and resources to process a transaction.⁶⁵⁶ If transactions are processed online, fewer costs could be incurred as intermediaries and other infrastructures

⁶⁵¹ Newlands 2018 <https://www.fnlonon.com/amp/articles/stiglitz-roubini-and-rogooff-lead-joint-attack-on-bitcoin-20180709>.

⁶⁵² Perkins "Cryptocurrency: The Economics of Money and Selected Policy Issues" 11.

⁶⁵³ Fussel and Kokkola "Key Concepts-Payments" 25-26. In general, a payment system comprises a structure of payment instruments, financial intermediaries, technology standards, rules, processes, procedures and institutions that enable the transfer of monetary value. Payment systems also rely on a sound legal and regulatory framework. Many resources are required to weave these elements together and enable the payment system to function smoothly.

⁶⁵⁴ Perkins "Cryptocurrency: The Economics of Money and Selected Policy Issues" 11.

⁶⁵⁵ FATF "Virtual Currencies: Key Definitions and Potential AML/CFT Risks" 8.

⁶⁵⁶ Schrodtt 2018 <https://finance.yahoo.com/news/cryptocurrency-replace-national-currencies-2030-160010881.html>.

would be eliminated. As a result, global economic activity could become more efficient compared to its performance under the traditional payment system.⁶⁵⁷

Proponents also claim that transaction costs could be reduced by breaking the monopoly of traditional payment systems if cryptocurrency is widely adopted and used as an alternative payment system.⁶⁵⁸

Apart from reducing transaction costs, the cryptocurrency system could also potentially simplify international transfers.⁶⁵⁹ This is because cryptocurrencies are not limited to a specific geographical area and can be traded worldwide.⁶⁶⁰ By eliminating middlemen, it is possible to transfer small amounts of money across borders almost free of charge and in a timely manner.⁶⁶¹

This is because users do not incur any costs for converting foreign currencies into their local currency.⁶⁶² Users also bypass the transport costs and time required to transport the cryptocurrency across regions,⁶⁶³ as is stored electronically and users can access it from anywhere.⁶⁶⁴

Another argument that has been put forward in favour of cryptocurrencies is that they promote financial inclusion to some extent⁶⁶⁵ of the unbanked and underbanked,⁶⁶⁶ especially in the Global South, where the majority of the population

⁶⁵⁷ Nica, Piotrowska and Schenk-Hoppe "Cryptocurrencies: Economic Benefits and Risks" 2.

⁶⁵⁸ Di Gregorio 2017 https://www.pwc.com/m1/en/media-centre/articles/block_chain-new-tool-to-cut-costs.html.

⁶⁵⁹ Yuneline 2019 *JABES* 217.

⁶⁶⁰ Holtmeier and Sandner 2019 "The Impact of Cryptocurrencies on Developing Countries" 3.

⁶⁶¹ Scott 2016 "How can Cryptocurrency and Blockchain Technology Play a Role in Building Social and Solidarity Finance?" 5.

⁶⁶² Eha 2014 <https://www.entreneur.com/article/231134>.

⁶⁶³ Howden 2015 *Emory International Law Review* 751.

⁶⁶⁴ Kaplanov 2012 *Loyola Consumer Law Review* 116.

⁶⁶⁵ Dabrowski and Janikowski 2018 "Virtual Currencies and their Potential Impact on Financial Markets and Monetary Policy" 24. Research shows that financial inclusion is important because it is linked to economic growth and enables the poor to improve their lives by participating in economic activities. Without access to financial services, unbanked people are forced to use alternative means for their transactions, which is not only time-consuming and costly, but also exposes them to the risk of financial crime. The unique characteristics of the blockchain technology that underpins cryptocurrency qualify it to successfully enable access and usability of financial services.

⁶⁶⁶ Lichtfous, Yadav, and Fratino "Can Block chain accelerate financial inclusion globally?" 3. There are two categories of financially marginalised people in the world. Firstly, the unbanked, i.e. people who do not have an account with a financial institution. There are a variety of reasons for

has no access to basic financial services.⁶⁶⁷ Unlike the traditional financial system,⁶⁶⁸ the argument is that cryptocurrencies allow anyone to gain access diverse financial services, as well as to participate in global trade without bank accounts, as long as a person has a digital device with an internet connection.⁶⁶⁹

For these reasons, some scholars believe that the use of blockchain technology, on which cryptocurrency is based, not only has the potential to close the financial inclusion gap in developing countries, but that the introduction of this technology could also contribute to the growth of poor economies, allowing them to eventually catch up with industrialised countries.⁶⁷⁰ It is noteworthy that financial exclusion is recognised worldwide as one of the factors contributing to poverty.⁶⁷¹

Nevertheless, it could be argued that the impact of cryptocurrencies on bridging the financial inclusion gap is not significant. In general, the financially excluded population consists of low-income consumers, typically including the elderly, rural dwellers, the disabled and the poor, who rely on cash as a medium of exchange and are also subject to a historic digital divide that denies them access to technology and

this, but research shows that poverty is the main reason. Secondly, in addition to the unbanked, there are also the underbanked. These people have limited access to financial services.

⁶⁶⁷ Mavilia and Pisani 2020 *Africa Journal of Science, Technology, Innovation and Development* 153.

⁶⁶⁸ Rubstova 2019 <https://econreview.berkeley.edu/banking-and-poverty-why-the-poor-turn-to-alternative-financial-services/>. The author demonstrates how participation in the traditional financial system requires opening and maintaining a bank account. Bank accounts are necessary so that financial institutions can assess the risk of financial crime from the first contact with the customer. At the account opening stage, the customer provides crucial information about themselves and it is this same information that financial institutions use as a benchmark to continually assess whether the customer is not involved in illegal activities at any point during the existence of the business relationship. Banks are generally perceived as a safe and stable environment or platform for managing customer funds.

⁶⁶⁹ Jumamil and Aranyawat 2017 "Block chain and Financial Inclusion" 8-9. Jumamil and Aranyawat submit that to maintain a bank account, you need to travel to a financial institution and incur travelling expenses as well as account opening and cash deposit costs. This challenge also extends to general ease of use in everyday life, where transaction costs, cross-border fees, minimum and maximum payment amounts and settlement times are barriers to accessing financial services. Blockchain technology for cryptocurrencies has been developed to overcome these barriers. Under the cryptocurrency system, users can easily and instantly open and transfer unlimited amounts of money worldwide without having to go through a national payment system.

⁶⁷⁰ Mavilia and Pisani 2020 *Africa Journal of Science, Technology, Innovation and Development* 152.

⁶⁷¹ Shiimi "Financial inclusion – an imperative towards Vision 2030" 1.

related innovations.⁶⁷² Such infrastructural challenges could exacerbate inequality, as the mining process for cryptocurrencies may not be finalised.⁶⁷³

From the perspective of building development capacity, due to the decentralised nature of cryptocurrencies without state authority, it remains unclear who would be responsible for providing digitally shared users with the necessary skills to mine the coins.⁶⁷⁴

It can be deduced from this that the usability of cryptocurrencies could be limited for the financially marginalised population, which raises the question of the extent to which cryptocurrencies actually influence financial inclusion. This is later discussed in the chapter under the section on socio-economic implications.

3.3.1.2 Privacy and security

Proponents of cryptocurrencies also see an advantage in the privacy they offer their users.⁶⁷⁵ Since cryptocurrencies function without centralised control, they have created the possibility of carrying out transactions without having to justify themselves to an authority.⁶⁷⁶ Due to decentralisation,⁶⁷⁷ personal information tied to a customer's identity that may sometimes be shared with other institutions is not required.⁶⁷⁸

While this lack of KYC⁶⁷⁹ whilst in some cases it can be misused by nefarious actors to facilitate illicit financial flows, it can also help customers to have more control over

⁶⁷² Cullen "Addressing the Digital Divide" 3-4; Digital Divide Date Unknown <https://cs.stanford.edu/people/eroberts/cs181/projects/digital-divide/start.html>. The digital divide refers to unequal access and use of technology by some sections of a society due to varying demographics.

⁶⁷³ Mavilia and Pisani 2020 *Africa Journal of Science, Technology, Innovation and Development* 153.

⁶⁷⁴ Mavilia and Pisani 2020 *Africa Journal of Science, Technology, Innovation and Development* 152.

⁶⁷⁵ Rice *Cryptocurrency: History, Advantages, Disadvantages, and the Future* 7.

⁶⁷⁶ Luther 2016 *The Independent Review* 401.

⁶⁷⁷ Benkler *The Wealth of Networks* 62. Decentralization is defined as "Conditions under which the necessary number of individuals whose influence is essential to drive meaningful outcomes."

⁶⁷⁸ Bunjaku, Trajvoska and Kacarski 2017 *Journal of Economics* 38

⁶⁷⁹ KYC is a mandatory ethical standard that requires financial and non-financial service providers to know certain details about their customers when they first open an account with their institutions and then over time during the existence of the business relationship. The reason for this is that these institutions need to ensure that the identity of their customers is legitimate and that the products they offer match the needs and risk profile of the individual customer in order to reduce fraud and illicit financial flows.

their personal data and keep it private.⁶⁸⁰ This is because financial institutions are vulnerable to cybercrime in the form of personal data breaches, which can lead to further offences such as fraud.⁶⁸¹

In addition to privacy, cryptocurrencies also offer notable security advantages.⁶⁸² At their core, they rely on strong cryptographic algorithms that secure transactions and protect wallets from unauthorised access.⁶⁸³ Once a transaction is recorded on the blockchain, it becomes immutable, meaning it cannot easily be altered or reversed, thereby reducing risks of fraud and chargeback disputes.⁶⁸⁴ Security is further reinforced by consensus mechanisms such as proof-of-work or proof-of-stake, which ensure that only valid transactions are added to the blockchain.⁶⁸⁵ Although hacking attempts on exchanges and wallets have occurred, compromising the underlying blockchain itself is extremely difficult as an attacker would need to alter every copy of the distributed ledger across the network simultaneously.⁶⁸⁶ For large cryptocurrencies, this would require vast amounts of computing power, making successful attacks highly improbable.⁶⁸⁷

Together, these features provide a level of transaction security that is often regarded as superior to many traditional payment systems.

3.3.1.3 Ease of use

Another potential advantage of cryptocurrencies is the ease of transfer and instant settlement of funds between the parties to a transaction, without the involvement of

⁶⁸⁰ Bunjaku, Trajvoska and Kacarski 2017 *Journal of Economics* 38.

⁶⁸¹ Rath 2020 <https://internationalsecurityjournal.com/cybercrime-and-the-financial-system/>.

⁶⁸² Bunjaku "Cryptocurrencies – Advantages and Disadvantages" 32.

⁶⁸³ Qaroush 2022 *International Journal of Applied Sciences and Smart Technologies* 4.

⁶⁸⁴ Politou and Casino "Blockchain Mutability: Challenges and Proposed Solutions" 5.

⁶⁸⁵ Vashchuk and Shuwar "Pros and Cons of Consensus Algorithm Proof of Stake: Difference in the Network Safety in Proof of Work and Proof of Stake" 106-107.

⁶⁸⁶ Reiff 2020 <https://www.investopedia.com/terms/b/block-chain.asp>. As already mentioned in this chapter, each new block contains its hash as well as the hash of the previous block in its chain. Therefore, it is difficult to change information and impossible to delete it once it has been recorded in the ledger and added to the blockchain.

⁶⁸⁷ Zohuri 2022 *IJTC Physics* 9.

a traditional financial intermediary.⁶⁸⁸ Therefore, transactions of unlimited amounts can be made conveniently to any user around the world.⁶⁸⁹

As there are no middlemen in the cryptocurrency system who set the prices, there is generally unlikely to be any potential for inflation in this system,⁶⁹⁰ safe for increases during congestion.⁶⁹¹ This has the advantage of preventing poor economic growth caused by the high inflation rates that characterise the fiat money system.⁶⁹² Furthermore, the lack of inflation helps cryptocurrencies maintain their value compared to the fiat currencies they are linked to.⁶⁹³

Another advantage of cryptocurrencies is that they do not require a complicated account opening procedure, as is the case with traditional banks,⁶⁹⁴ and thus enables easier and broader participation in international trade.⁶⁹⁵

3.3.1.4 Decentralisation

Decentralisation is one of the notorious advantages of the cryptocurrency system,⁶⁹⁶ as it enables the conclusion of a transaction without a controlling authority.⁶⁹⁷ Proponents claim that decision-making power is distributed across all members of the cryptocurrency system, as there is no central authority and no one can dictate rules to users.⁶⁹⁸

⁶⁸⁸ Thakur and Banik 2018 *IOSR Journal of Economics and Finance* 41.

⁶⁸⁹ Bos *Cryptocurrency and Regulation* 19.

⁶⁹⁰ Ivaschenko 2016 *The Problems of the Economy* 272.

⁶⁹¹ Dafader 2025 *IJIRP* 85.

⁶⁹² CRS "Cryptocurrency: The Economics of Money and Selected Policy Issues" 12-13.

⁶⁹³ Rice *Cryptocurrency: History, Advantages, Disadvantages, and the Future* 12. This characteristic makes cryptocurrencies a better investment option for investors seeking higher returns. This is because it accurately reflects the true value of an investment compared to other investment options that are subject to inflation as the value of their returns erode over time.

⁶⁹⁴ Bunjaku, Trajvoska and Kacarski 2017 *Journal of Economics* 37.

⁶⁹⁵ Holtmeier and Sander 2019 "The Impact of Cryptocurrencies on Developing Countries" 8.

⁶⁹⁶ Decentralisation is made possible by the blockchain technology on which the cryptocurrency is based. The concept has already been discussed in detail earlier in this chapter.

⁶⁹⁷ Benkler *The Wealth of Networks* 62. Benkler defines decentralisation as a description of conditions under which the actions of several participants are interrelated and effective without one participant having to control the effective results.

⁶⁹⁸ Bunjaku, Trajvoska and Kacarski 2017 *Journal of Economics* 37.

And if one part of the system is interrupted and goes offline, the rest of the system continues to function effectively.⁶⁹⁹ The same cannot be said about the fiat money system, where a system error or the error of one participant can trigger a domino effect that affects the entire system due to the centralised servers and the interdependence of functions.⁷⁰⁰

Having outlined the above advantages, however, it is worth noting that given the lack of regulation of cryptocurrencies⁷⁰¹ and the significant difference in the governance structure between cryptocurrencies and the fiat money system,⁷⁰² it is difficult to say with certainty whether the above advantages qualify cryptocurrencies as a more efficient and perhaps better alternative payment system compared to the fiat money system.

Due to the advantages mentioned above, some researchers may be inclined to make comparisons and conclude that cryptocurrencies are indeed a more efficient system. Some researchers,⁷⁰³ on the other hand, have suggested that the cryptocurrency system is inefficient for the following reasons.

Originally, the main argument in favour of cryptocurrencies was their low transaction fees, which promised a potentially viable alternative to the fiat money system.⁷⁰⁴ However, contrary to Satoshi Nakamoto's vision,⁷⁰⁵ operating costs have gradually increased, for example due to expensive, resource-intensive labour verification procedures.⁷⁰⁶ This has led to the creation of alternative verification mechanisms.⁷⁰⁷

⁶⁹⁹ Ivashchenko 2016 "Using Cryptocurrency in the Ukrainian Small and Medium Enterprises" 272.

⁷⁰⁰ Global Banking & Finance Review 2018 <https://www.globalbankingandfinance.com/centralized-vs-decentralized-currency-is-dascoins-hybrid-model-better/>; Wright and De Filippi 2015 *SSRN Electronic Journal* 9.

⁷⁰¹ As articulated in chapter 1 above.

⁷⁰² As can be seen from the theoretical and conceptual foundations presented in this chapter and in chapter 2.

⁷⁰³ For further reading on some of the noted weaknesses of the cryptocurrency system, see DeVries 2016 *International Journal of Business Management and Commerce* 4-5.

⁷⁰⁴ Hileman 2014 *SSRN Electronic Journal* 3.

⁷⁰⁵ According to Nakamoto's ideal model, as expressed in the Bitcoin source code, there is a hard upper limit for the production of only up to 21 million Bitcoins, above which the block rewards are cancelled and transaction fees are introduced. Hayes 2021 <https://www.investopedia.com/tech/what-happens-bitcoin-after-21-million-mined/>.

⁷⁰⁶ The verification mechanisms dictate the mining costs, which in turn determine the transaction fees. The costlier and resource-intensive the verification mechanism, the higher the transaction fees. The more popular cryptocurrencies become, the more difficult the cryptographic puzzle

While these alternative verification mechanisms supposedly consume fewer resources and thus contribute to lower transaction fees,⁷⁰⁸ as more and more users pool their resources and obtain the necessary computing power from third parties,⁷⁰⁹ this increases centralisation within the cryptocurrency network.⁷¹⁰ This undermines the idealistic decentralised model that Nakamoto had in mind.⁷¹¹

This resulting centralisation causes problems for the cryptocurrency network, as it threatens the possibility of low costs.⁷¹² This is because the bundling of mining efforts may require higher fees to support the computing infrastructure, making the introduction of alternative verification mechanisms counterproductive.⁷¹³

Apart from the higher transaction fees, another inefficiency lies in the uncertainty of trading cryptocurrencies, as there are no fixed fees.⁷¹⁴ This leads to many unconfirmed transactions as users unknowingly either underestimate or overestimate

becomes, forcing miners to invest in more advanced technology to solve the puzzle. This inevitably leads to an increase in transaction fees. For an overview of governance implications of verification mechanisms, see Nica, Piotrowska and Shenk-Hoppe 2017 "Cryptocurrencies: Concept and Current Market Structure". For in depth description of the proof of work protocol, see Bank for International Settlements here, Bouvard and Camatta 2019 *Review of Financial Studies* 1662 - 1715.

⁷⁰⁷ Saleh 2018 *SSRN Electronic Journal* 2. For in depth discussion of some of the alternative verification mechanisms see Aggarwal and Kumar "Cryptographic Consensus Mechanisms" 211-226.

⁷⁰⁸ Frankenfield 2021 <https://www.investopedia.com/terms/c/consensus-mechanism-cryptocurrency.asp>.

⁷⁰⁹ Cong, He and Li 2019 "Decentralised Mining in Centralised Pools" 1. Pooled mining has become popular in recent years. Miners join forces, share the risk of mining and the associated costs and share the rewards.

⁷¹⁰ Hulaburda and Mueller-Bloch 2020 *Academy of Management Discoveries* 712.

⁷¹¹ Arnosti and Weinberg 2018 "Bitcoin: A Natural Oligopoly" 1.

⁷¹² Savolainen and Ruiz-Ogarrio 2020 *SSRN Electronic Journal* 9.

⁷¹³ Haeringer and Halaburda 2018 *SSRN Electronic Journal* 9. The authors advance that mining consumes electricity and requires high computing power to verify transactions. Both electricity consumption and the computing power required for mining have increased significantly in recent years. This is due to competition between miners to be the first to crack the code in order to receive rewards and associated fees. Competition motivates miners to invest in more computing power, including pooling mining efforts to beat the others. So as the number of miners and specialised mining computers increases, so does energy consumption, which some say also has a far-reaching impact on the environment. Multi-billionaire entrepreneur Elon Musk, for example, publicly expressed his concern in 2021 about Bitcoin's energy consumption, which he believes is due to the rapid increase in the use of fossil fuels for Bitcoin mining, citing data from Cambridge University researchers to back up his stance. See <https://www.cnbc.com/2021/05/13/why-elon-musk-is-worried-about-bitcoin-environmental-impact.html>.

⁷¹⁴ Sovbetov 2018 *Journal of Economics and Financial Analysis* 3. Cryptocurrency issuance is decentralised and its value wholly depends on supply and demand which determines how much investors are willing to spend on it.

transaction prices and it is difficult to determine the exact price required to confirm a transaction.⁷¹⁵

After discussing some of the advantages of using cryptocurrencies and their disadvantages, the risks associated with the use of cryptocurrencies are discussed below.

3.3.2 Risks

Like any ground-breaking technology, cryptocurrency also harbours some risks.⁷¹⁶ In the following section, the study looks at the key risks arising from the use of cryptocurrencies and how they affect the international monetary system in particular. The focus is on two types of criminal offences that have been associated with cryptocurrencies since their inception, namely, money laundering and tax evasion.

This section also examines the literature on the stability of the blockchain network. This is because the blockchain network is the distinguishing feature between cryptocurrencies and fiat currencies, as it eliminates the need for a centralised authority.⁷¹⁷ Various risks associated with the governance structure of cryptocurrencies can affect their stability.⁷¹⁸ Therefore, any discussion of the pros and cons of cryptocurrencies is incomplete without examining whether the blockchain network is stable enough to enable the cryptocurrency to fulfil the purpose for which it was developed, i.e. to be a widely used payment system and potentially provide an alternative currency system.

3.3.2.1 Money laundering and tax evasion

Despite the many advantages of decentralisation that have already been pointed out, users are not protected within the cryptocurrency system, as there is no central authority responsible for overseeing the system.⁷¹⁹ Furthermore, in most cases there

⁷¹⁵ Latif, Mohd et al 2017 *Journal of Engineering and Applied Sciences* 2285.

⁷¹⁶ Berensten and Schar 2018 *Federal Reserve Bank of St. Louis Review* 14.

⁷¹⁷ Islam et al. "The Influential Facts of Cryptocurrency and Fiat Currency" 69.

⁷¹⁸ Campbell-Verduyn and Malcolm "Bitcoin and Beyond" 95.

⁷¹⁹ Bos *Cryptocurrencies and Regulation* 14. This means that there is no body responsible for monitoring transactions and reporting suspicious activity.

are no or insufficient laws dealing with the use of cryptocurrencies within the existing legal framework.⁷²⁰ Even if laws were to exist, the pseudoanonymous⁷²¹ nature of cryptocurrencies would make it difficult to enforce these laws as the users are unknown.⁷²² As a result, the system is vulnerable to abuse for illegal activities,⁷²³ as discussed below.

Malicious actors could misuse cryptocurrencies for money laundering.⁷²⁴ Without a central authority backed by a robust KYC framework, users can easily open and operate fictitious accounts.⁷²⁵ The danger here is that transactions are not monitored so that suspicious activity cannot be detected and reported.⁷²⁶ This creates a breeding ground for illegal financial flows such as money laundering.⁷²⁷ This is exacerbated by the high processing speed of the cryptocurrency system.⁷²⁸ The faster the transaction, the less chance there is of intercepting and blocking a suspicious transaction or recovering the funds after processing.⁷²⁹

To understand the impact of cryptocurrencies on money laundering, it is first important to know how money laundering works. In general, the money laundering process goes through stages of placement, layering and integration, whereby funds derived from illicit activities are introduced into the monetary system and their nature, origin and ownership are gradually concealed through multiple transactions, transferring funds between different individuals who end up using the funds in different ways, making it almost impossible to detect the origin of the funds.⁷³⁰

⁷²⁰ Magnuson 2018 *Stanford Journal of Law, Business and Finance* 180.

⁷²¹ Peters, Panayi and Chapelle 2015 *The Journal of Financial Perspectives* 19. Anonymity has been recognised as a potential facilitator of crime. This is because while users are linked to a public cryptocurrency address when making transactions, the transactions themselves are not linked to the owner, whose actual identity and location may never be known. As a result, it becomes easy for users to engage in illegal activities where the likelihood of being caught is low or non-existent.

⁷²² Gerba and Rubio "Virtual Money: How Much Do Cryptocurrencies Alter the Fundamental Functions of Money?" 24.

⁷²³ Yuneline 2019 *JABES* 217.

⁷²⁴ Nica, Piotrowska and Schenk-Hoppe "Cryptocurrencies: Benefits and Risks" 25

⁷²⁵ Nica, Piotrowska and Schenk-Hoppe "Cryptocurrencies: Benefits and Risks" 25.

⁷²⁶ Dyntu and Dykyi 2018 *Baltic Journal of Economic Studies* 79.

⁷²⁷ Allaire 2013 "Beyond Silk Road: Potential Risks, Threats, and Promises of Virtual Currencies" 117.

⁷²⁸ Coelho, Fishman and Ocampo "Supervising Crypto Assets for Anti-Money Laundering" 3.

⁷²⁹ UNODC 2014 "Basic Manual on the Detection and Investigation of the Laundering of Crime Proceeds Using Virtual Currencies" 39.

⁷³⁰ Comolli and Korver 2021 *DJJFLP* 188-189.

In the context of cryptocurrencies, the three phases of money laundering are as follows. During placement, participants use cryptocurrency trading platforms or exchanges to convert illicit fiat money into cryptocurrencies. This is easy to do on these platforms as they do not adhere to anti-money laundering laws, which allows for the anonymity required for smooth money laundering.⁷³¹ Cryptocurrency platforms allow users to create and manage multiple pseudonymous accounts at low cost, which favours the placement of illicit funds in these wallets.⁷³²

Participants use anonymisation tools such as the dark web for their transactions, which enable seamless money laundering while preserving their identity and privacy.⁷³³ Without anonymisation tools, law enforcement agencies might otherwise have been able to track the digital footprint of users on cryptocurrency networks by using wallet addresses to link individuals to transactions stored on the blockchain.⁷³⁴ During integration, dirty cryptocurrency is converted into clean cryptocurrency by online platforms that accept cryptocurrency as a means of payment.⁷³⁵ The more transactions are carried out and money is moved across borders, the less transparent the source of the money becomes and the more difficult it is to uncover illegal activities.⁷³⁶

To summarise, the characteristics of cryptocurrencies make them vulnerable to money laundering, as users can transfer funds worldwide without having to deal with a central authority.⁷³⁷ This means that a central authority cannot enforce anti-money laundering laws against users who use cryptocurrencies to launder money.⁷³⁸ The lack of interaction with a central authority makes it impossible to identify participants who may be carrying out illegal activities within a cryptocurrency network.⁷³⁹ Participants can carry out transactions anonymously without identifying themselves

⁷³¹ Wronka 2022 *JMLC* 334.

⁷³² Rysin and Rysin "The money laundering risk and regulatory challenges for cryptocurrency markets" 195.

⁷³³ Wronka 2022 *JMLC* 334.

⁷³⁴ Comolli and Korver 2021 *DJJFLP* 185.

⁷³⁵ Wronka 2022 *JMLC* 334.

⁷³⁶ Wronka 2022 *JMLC* 334.

⁷³⁷ Comolli and Korver 2021 *DJJFLP* 185.

⁷³⁸ Comolli and Korver 2021 *DJJFLP* 185.

⁷³⁹ Ncube and Kabwe 2023 *De Jure Law Journal* 369.

to a central authority.⁷⁴⁰ Essentially, pseudonymity makes it more difficult to monitor transactions and thus provides a favourable environment for illegal activity, allowing participants to access clean funds.⁷⁴¹

It is worth noting that the spread of money laundering with cryptocurrencies is not limited to cryptocurrency exchanges or trading platforms but can also be facilitated by other platforms that facilitate cryptocurrency transactions, provided that these platforms are not subject to AML and KYC regulations.⁷⁴²

Typically, in many cases traditional banks are one of the main channels for money laundering activities, especially during the placement and layering stages, with the proceeds being channelled into the financial system via cash, direct transfers and electronic funds transfers.⁷⁴³ A successful money laundering process manifests itself when proceeds of crime are presented to a legitimate business without their connection to the underlying crime being obvious.⁷⁴⁴ In the context of cryptocurrencies, companies exchange cryptocurrencies for fiat currencies for "safekeeping" to disguise their money laundering origins.⁷⁴⁵ To this end, actors transfer funds across territories and use them to purchase goods and services.⁷⁴⁶

Although not as popular as cryptocurrency exchanges, one platform that is overlooked for the proliferation of money laundering is a cryptocurrency kiosk.⁷⁴⁷ Since cryptocurrency kiosks are usually not linked to a bank account or cryptocurrency exchanges, actors can easily use them as tools to facilitate money laundering without being detected, especially because these kiosks are run by operators that usually operate without AML and KYC requirements.⁷⁴⁸

⁷⁴⁰ Ncube and Kabwe 2023 *De Jure Law Journal* 369.

⁷⁴¹ Houben and Snyers 2018 <https://repository.uantwerpen.be/docman/irua/80a4a6/152140.pdf>.

⁷⁴² Ncube and Kabwe 2023 *De Jure Law Journal* 370.

⁷⁴³ Van Jaarsveld Aspects of Money Laundering in South African Law 177-178.

⁷⁴⁴ Van Jaarsveld Aspects of Money Laundering in South African Law 178.

⁷⁴⁵ Comolli and Korver 2021 *DJJFLP* 210.

⁷⁴⁶ Comolli and Korver 2021 *DJJFLP* 210.

⁷⁴⁷ Comolli and Korver 2021 *DJJFLP* 208. A cryptocurrency kiosk is a self-operated device that functions similarly to an automated teller machine (ATM). It is often located in malls and enables people to buy and sell cryptocurrency on the spot.

⁷⁴⁸ Comolli and Korver 2021 *DJJFLP* 209.

In addition, most kiosks do not require identification for transactions, making it easy for third parties to act on behalf of actors to convert cash into cryptocurrency.⁷⁴⁹ Actors also do not need to have an existing crypto wallet to deposit cash, as the kiosk will create one for them while finalising the transaction.⁷⁵⁰ Receipts for transactions from crypto kiosks can easily be destroyed, making it difficult to link actors to the transactions they have made.⁷⁵¹

Another platform that can be used to spread money laundering are gambling sites that allow betting in cryptocurrencies.⁷⁵² Actors on these platforms can trade illegal cryptocurrencies with virtual chips.⁷⁵³ These gambling platforms can be managed by anyone from anywhere in the world. This makes it difficult to enforce a particular jurisdiction's AML and KYC regulations.⁷⁵⁴

Money can also be laundered where cryptocurrencies are accepted as a means of payment, through the use of cryptocurrency debit cards and payment apps.⁷⁵⁵ When a payment is due, customers top up their digital wallets or debit cards with cryptocurrency, which in turn is converted into fiat money by a software processor used by a retailer.⁷⁵⁶ Some retailers issue debit cards linked to cryptocurrency accounts to pay for goods and services.⁷⁵⁷

In addition, the over-the-counter (OTC) purchase of cryptocurrencies from traders could also create a favourable environment for players who use cryptocurrencies to launder money without the authorities having to draw consequences due to the anonymity of OTC transactions.⁷⁵⁸ OTC brokers trade the sale of cryptocurrencies

⁷⁴⁹ FinCEN 2025 <https://www.fincen.gov/sites/default/files/shared/FinCEN-Notice-CVCKIOSK.pdf> 4.

⁷⁵⁰ Ncube and Kabwe 2023 *De Jure Law Journal* 371.

⁷⁵¹ Teichmann and Falker 2021 *JMLC* 94.

⁷⁵² Comolli and Korver 2021 *DJJFLP* 212.

⁷⁵³ Comolli and Korver 2021 *DJJFLP* 213.

⁷⁵⁴ Ncube and Kabwe *De Jure Law Journal* 371.

⁷⁵⁵ Comolli and Korver 2021 *DJJFLP* 211.

⁷⁵⁶ Fanusie 2021 <https://www.lawfareblog.com/merchant-crypto-payments-new-national-security-frontier>.

⁷⁵⁷ Comolli and Korver 2021 *DJJFLP* 211.

⁷⁵⁸ Medalie 2019 <https://blog.kaiko.com/what-is-otc-cryptocurrency-trading-66d725c867f>.

between willing participants online and anonymously. In this way, large sums of money can be moved without being detected or intercepted.⁷⁵⁹

Due to their decentralised, pseudo-anonymous and virtual nature, cryptocurrencies could also tempt users to evade taxes.⁷⁶⁰ It is worth noting that tax evasion is not only specific to cryptocurrencies, as it is also inherent in the fiat money system.⁷⁶¹ The extent of tax evasion in cryptocurrency transactions can be similar to or even exceed that of the fiat money system.⁷⁶²

The following discussion shows how some of the features of cryptocurrencies enable tax evasion.

Like traditional tax havens, cryptocurrencies can also offer tax-free income. The lack of a specific jurisdiction in which cryptocurrencies operate makes them attractive to those seeking to evade taxes, as they are not taxed at source.⁷⁶³

Users benefit from the lack of connection between a cryptocurrency and traditional financial institutions.⁷⁶⁴ The reason for this is that these formal financial institutions have traditionally been subject to scrutiny by regulators, who enforce the disclosure of user accounts and identification data to reduce the risk of financial crime and tax evasion.⁷⁶⁵

However, without a centralised authority, there are no similar oversight standards within the cryptocurrency system, which encourages tax evasion and illicit financial flows.⁷⁶⁶ This problem is exacerbated by the poorly defined income tax status of cryptocurrencies, which complicates the application and enforcement of tax

⁷⁵⁹ Medalie 2019 <https://blog.kaiko.com/what-is-otc-cryptocurrency-trading-66d725c867f>.

⁷⁶⁰ Steward and Johnston 2012 <http://www.taxhistory.org/www/features.nsf/Articles/C1A7ED502DD2B84685257AAF0056A2A2?OpenDocument>.

⁷⁶¹ Slatery 2014 *Brooklyn Journal of International Law* 860.

⁷⁶² Slatery 2014 *Brooklyn Journal of International Law* 860.

⁷⁶³ Marian 2013 *Michigan Law Review First Impressions* 42.

⁷⁶⁴ Sanz-Bas et al 2021 *Laws* 2.

⁷⁶⁵ Sanz-Bas et al 2021 *Laws* 1-2.

⁷⁶⁶ Bunjaku et al 2017 *Journal of Economics* 32.

regulations - a weakness that is attractive to cryptocurrency users seeking to facilitate their criminal and tax evasion activities.⁷⁶⁷

Furthermore, instant, unlimited and irreversible cross-border cryptocurrency transactions also favour criminal activity.⁷⁶⁸ This characteristic global reach allows malicious actors to act through countries with which they have little or nothing to do in order to create confusion about their identity or location.⁷⁶⁹ This makes it difficult for anyone to verify the source of funds or their destination and to identify, track down and hold malicious actors accountable if illegal activities are discovered.

3.3.2.2 Financing illicit activities

The previous sections of the study discussed how the characteristics of cryptocurrencies make them attractive to criminals. As with cash, users of cryptocurrencies are guaranteed anonymity and, as with digital money, transactions can be carried out quickly and easily worldwide and almost instantly. This makes it easy for organised crime to use them.

Some criminal organisations, such as terrorist groups, may use cryptocurrencies to finance their activities, either directly or through their supporters.⁷⁷⁰ For example, the 2015 Paris and 2016 Jakarta terrorist attacks⁷⁷¹ are speculated to have been connected to the use of Bitcoin,⁷⁷² and in 2015 there was a case of an American teenager who was convicted for publicly advising his social media followers on how they could use Bitcoin to disguise funds given in support of ISIS.⁷⁷³ While there is no evidence that the teenager ever successfully raised funds for ISIS via Bitcoin wallets,

⁷⁶⁷ OECD "Taxing Virtual Currencies" 8-9 and 12. According to the paper, there is currently no internationally agreed standard taxonomy for cryptocurrencies. Therefore, different countries categorise cryptocurrencies into different asset classes, which has different tax implications depending on a particular country's new or old regulatory approach.

⁷⁶⁸ Lowery 2013 "Beyond Silk Road: Potential Risks, Threats, and Promises of Virtual Currencies" 73.

⁷⁶⁹ Brill and Keene 2014 *Defence against Terrorism Review* 14.

⁷⁷⁰ Ridwan 2019 *Jurnal Sentris* 4-5.

⁷⁷¹ For a detailed account of the Paris and Jakarta attacks see BBC News 2015 <https://www.bbc.com/news/world-europe-34818994> and BBC News 2016 <https://www.bbc.com/news/world-asia-35309195#include-1> respectively.

⁷⁷² Keatinge, Carlisle and Keen "Virtual Currencies and Terrorist Financing" 24.

⁷⁷³ The Guardian 2015 <https://www.theguardian.com/us-news/2015/jun/11/virginia-teen-pleads-guilty-isis-syria>.

the incident shows how attractive cryptocurrencies can be for terrorists to disguise the financing of their activities.

Keatinge, Carlisle and Keen⁷⁷⁴ believe that cryptocurrencies are only attractive to a few small players and not to large organisations such as Al Qaeda and ISIS because cryptocurrencies are volatile and not user-friendly. As a result, it would be a challenge to transfer the substantial amounts of money they need to successfully finance their current operations.

So instead of using cryptocurrencies as a long-term funding method, terrorists could better use them for ad hoc transfers among themselves to facilitate side activities such as travelling and weapons procurement, small fundraising projects and payments through illicit trade channels hidden in the dark web.⁷⁷⁵ Payments for transactions on the Dark Web are mainly processed via cryptocurrencies.⁷⁷⁶

3.3.2.3 Legal implications and risks

The basis for understanding the risks of cryptocurrencies has already been established above. The following section expands on this foundation by providing a brief analysis of the influences and risks associated with certain areas of law. As cryptocurrencies gain traction and acceptance, certain areas of law may experience significant impacts that will lead to entirely new legal issues relating to cryptocurrency transactions and investments.

Contract law is currently experiencing the greatest impact of cryptocurrencies. Internationally, cryptocurrency is increasingly seen as property, while smart contracts are recognised as legally binding entities.⁷⁷⁷

⁷⁷⁴ Keatinge, Carlisle and Keen "Virtual Currencies and Terrorist Financing" 28.

⁷⁷⁵ CTIF - CFI 23rd Annual Report 2016 <https://www.ctif-cfi.be/website/images/EN/annual-report/ar2016en.pdf>. The Dark Web is defined as encrypted digital material that cannot be accessed through regular search engines. It is accessed via special browsers that offer more privacy and anonymity than conventional websites. Bloomenthal 2022 <https://www.investopedia.com/terms/d/dark-web.asp>.

⁷⁷⁶ Torpey 2016 <https://bitcoinmagazine.com/culture/alphabay-comments-on-bitcoin-congestion-monero-adoption-and-zcash-possibilities>. -1482345512.

⁷⁷⁷ Schwinger 2020 *New York Law Journal* 1.

Smart contracts are complex, but the terms of the agreement are embedded in the blockchain.⁷⁷⁸ If all requirements are met, the agreement is automatically put into effect and the payment is finalised.⁷⁷⁹ The permanent nature of cryptocurrency transactions raises questions, particularly in relation to representation.⁷⁸⁰ Cases of fraud by the principal or agent or erroneous payments to the wrong party, possibly due to the incorrect entry of a public key, cannot be cancelled.⁷⁸¹

Cases of fraud by the principal or agent or erroneous payments to the wrong party, possibly due to the incorrect entry of a public key, cannot be cancelled.⁷⁸²

In addition, there is a lack of solutions for actors who fall victim to contract fraud, as cases such as the Africrypt scam show.⁷⁸³ Cryptocurrencies currently evade regulatory oversight to such an extent that the authorities lack the power to interfere in these scams. Legal remedies are currently limited, leaving vulnerable people unprotected when they are exploited and when they enter into contracts.⁷⁸⁴

It is important to understand that buying property with cryptocurrencies is legal. However, these transactions must be settled in cash, as securing a mortgage with cryptocurrencies is impractical due to their decentralised nature and the lack of a system comparable to that of commercial banks.⁷⁸⁵

Furthermore, there is no guarantee of funds as Crypto Asset Service Providers (CASPs) do not fall under the category of financial institutions, which increases the risk associated with the transactions. If a transfer is made and the purchase request

⁷⁷⁸ Barney 2023 <https://searchcompliance.techtarget.com/definition/smart-contract>.

⁷⁷⁹ Barney 2023 <https://searchcompliance.techtarget.com/definition/smart-contract>.

⁷⁸⁰ Jones and Campbell Date Unknown <https://www.hfw.com/How-are-contract-and-trust-law-principles-applied-in-cryptocurrency-disputes-July-19>.

⁷⁸¹ Jones and Campbell Date Unknown <https://www.hfw.com/How-are-contract-and-trust-law-principles-applied-in-cryptocurrency-disputes-July-19>.

⁷⁸² Lock *The Regulation of Cryptocurrencies in South Africa* 27.

⁷⁸³ Henderson and Prinsloo 2021 <https://www.bloomberg.com/news/articles/2021-06-23/s-african-brothers-vanish-and-so-does-3-6-billion-in-bitcoin>.

⁷⁸⁴ Lock *The Regulation of Cryptocurrencies in South Africa* 28.

⁷⁸⁵ PMG 2021 <https://pmg.org.za/committee-meeting/33029/>.

is later withdrawn, the buyer might not receive a refund due to the irreversible nature of cryptocurrency transactions.⁷⁸⁶

Cryptocurrency is likely to impact various facets of contractual life in the near and distant future. The developments are likely to lead to new legal issues. It will be exciting to see how the courts deal with these issues.

Cryptocurrency will also have an impact on banking law, affecting both central banks and traditional banks in different ways. At present, neither bank faces an immediate threat from cryptocurrencies. However, given the potentially far-reaching consequences of future risks, it is advisable to discuss this topic.

Traditional banks ponder whether cryptocurrencies will cause the demise of physical currency.⁷⁸⁷ Should cryptocurrencies become widely accepted, traditional banks run the risk of being marginalised if they do not integrate cryptocurrencies into their business, especially if cryptocurrencies are price-stable.⁷⁸⁸ In the scenario in which the value of cryptocurrencies stabilises, crypto asset service providers (CASPs) such as wallet providers could even develop into a new form of "bank". However, this scenario is still a long way off, as shown by the fact that Visa processed over 100 times more transactions than Bitcoin in 2018.⁷⁸⁹

Commercial banks should therefore remain vigilant with regard to these possible scenarios and continuously monitor the situation. Should the aforementioned risks materialise, banks should have already developed a well-defined strategy for the effective integration of cryptocurrencies to ensure their continued relevance.

On the other hand, central banks are confronted with systemic risks posed by cryptocurrencies that could undermine the national payment system.⁷⁹⁰ If this risk becomes significant, central banks are advised to consider creating their own digital

⁷⁸⁶ PMG 2021 <https://pmg.org.za/committee-meeting/33029/>.

⁷⁸⁷ Lee and Wessel 2018 <https://www.brookings.edu/blog/up-front/2018/05/21/digital-currencies-five-big-implications-for-central-banks/>.

⁷⁸⁸ Lee and Wessel 2018 <https://www.brookings.edu/blog/up-front/2018/05/21/digital-currencies-five-big-implications-for-central-banks/>.

⁷⁸⁹ Lee and Wessel 2018 <https://www.brookings.edu/blog/up-front/2018/05/21/digital-currencies-five-big-implications-for-central-banks/>.

⁷⁹⁰ IFWR CAR WG "Position on Crypto Assets" 10.

currencies and introducing further regulations for cryptocurrencies in order to protect the integrity of the national payment system.⁷⁹¹

In banking law, the risks associated with cryptocurrencies will only manifest themselves when they are widely accepted and used. These risks require constant monitoring and it is crucial to precisely evaluate the actual scope of the use of cryptocurrencies to ensure a timely and appropriate response.

Tax law is another area that could be affected by cryptocurrencies. The challenges in this area arise from the combination of self-disclosure obligations and the anonymity that cryptocurrencies offer, leading to potential difficulties. The cross-border nature of cryptocurrency transactions exacerbates these challenges. Currently, the non-reporting of income from cryptocurrencies is a major problem, which the authorities attribute to both dishonesty and the lack of a clearly defined legal framework.⁷⁹²

In order to effectively combat tax evasion, it is crucial to address the characteristics that enable anonymity, which is a focus of the IFWG. However, regulating cross-border transactions and associated flows present a more complex challenge. Foreigners can exploit loopholes in the rules imposed by regulators to evade taxes. Therefore, the IFWG needs to develop strategies to monitor cross-border transactions and verify the integrity of the parties involved, especially those from foreign jurisdictions.⁷⁹³

In addition, the complexity of blockchain technology, distributed ledger systems and cryptography complicates investigations into tax evasion cases, especially when law enforcement agencies lack expertise in these areas.

3.4 Socio-economic implications

Beyond their technical advantages and associated risks, cryptocurrencies also carry significant socio-economic implications, particularly for regions with limited access to

⁷⁹¹ Lee and Wessel 2018 <https://www.brookings.edu/blog/up-front/2018/05/21/digital-currencies-five-big-implications-for-central-banks/>.

⁷⁹² Select Committee on Finance "A guide to understanding cryptocurrency issues and regulatory frameworks" 11.

⁷⁹³ Lock *The Regulation of Cryptocurrencies in South Africa* 29.

traditional financial services. In contexts such as the Global South,⁷⁹⁴ digital financial innovations can support financial inclusion, facilitate cross-border remittances, enhance economic resilience, and even contribute to achieving broader development objectives. Examining these implications provides a deeper understanding of how cryptocurrencies interact with social and economic systems, and sets the stage for considering the regulatory and legal frameworks needed to manage both their benefits and risks.

3.4.1 Financial inclusion

Financial inclusion is a major challenge in sub-Saharan Africa "SSA" compared to other developing regions, as a large part of the population remains outside the traditional banking system.⁷⁹⁵ This owes to factors like the costs associated with acquiring financial services, the distance to financial service providers, financial illiteracy and the lack of relevant documentation.⁷⁹⁶ In recent years, however, the level of financial inclusion in the region has improved due to accelerated digitalisation, which has enabled alternative access to finance.⁷⁹⁷ This can be seen in the increasing penetration of mobile phones, smartphone connections and mobile money accounts among adults, which enables relatively low transaction costs and

⁷⁹⁴ Dados and Connell 2012 *Contexts* 12; World Population Review 2023 <https://worldpopulationreview.com/country-rankings/global-south-countries>; Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 4; GSMA 2022 <https://www.gsma.com/mobileeconomy/wp-content/uploads/2022/10/The-Mobile-Economy-Sub-Saharan-Africa-2022.pdf>. The term 'Global South' refers to regions in Latin America, Asia, Africa, and Oceania often characterised by low per capita income and political or cultural marginalisation. The Covid-19 pandemic, climate change, and the war in Ukraine have disproportionately affected these regions. Amid these crises, digital innovations, including electronic finance, have sustained international trade and highlighted the potential of technologies like cryptocurrency to drive inclusive growth and support sustainable development. This section focuses on the empirical impact of cryptocurrencies in the Global South, with particular emphasis on sub-Saharan Africa.

⁷⁹⁵ Mavilia and Pisani 2019 *African Journal of Science, Technology, Innovation and Development* 154.

⁷⁹⁶ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 6; Asian Development Bank Institute *Fintech and Financial Inclusion: Opportunities and Pitfalls* 3.

⁷⁹⁷ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 6.

could potentially pave the way for the introduction of cryptocurrencies in sub-Saharan Africa.⁷⁹⁸

Kenya's M-Pesa, a mobile money solution launched by communications company Safaricom in 2007, is an example of the increasing use of a digitisation-based approach to financial inclusion in SSA.⁷⁹⁹ The M-Pesa service enables users to exchange cash for electronic deposits with registered M-Pesa agents and vice versa.⁸⁰⁰

With improved financial and digital literacy, authorities regard the opportunity to deploy cryptocurrency solutions via mobile phone accounts.⁸⁰¹ Users can register accounts to trade and convert cryptocurrencies at low cost and with minimal documentation. Users also do all that without having to physically go to financial service providers.⁸⁰² Improving the financial inclusion of the population and companies that have no or too few banks is therefore a priority.⁸⁰³

One example of this is the Kenyan blockchain remittance service BitPesa, which is partnering with Bitbond, a German tokenisation technology company, to improve financial access through cross-border lending to small businesses in Africa via blockchain payment processing.⁸⁰⁴ Under the partnership, successful Kenyan applicants for international investor funding via Bitbond will receive their tokenised loans directly via BitPesa to a mobile money account or bank account in their local

⁷⁹⁸ GSMA 2022 <https://www.gsma.com/mobileeconomy/wp-content/uploads/2022/10/The-Mobile-Economy-Sub-Saharan-Africa-2022.pdf>.

⁷⁹⁹ Global Economic Governance Programme 2017 <https://www.geg.ox.ac.uk/sites/default/files/M-Pesa%20-%20a%20success%20story%20of%20digital%20financial%20inclusion%20-%20Njuguna%20Ndung%E2%80%99u.pdf>.

⁸⁰⁰ Global Economic Governance Programme 2017 <https://www.geg.ox.ac.uk/sites/default/files/M-Pesa%20-%20a%20success%20story%20of%20digital%20financial%20inclusion%20-%20Njuguna%20Ndung%E2%80%99u.pdf>.

⁸⁰¹ GSMA 2022 <https://www.gsma.com/mobileeconomy/wp-content/uploads/2022/10/The-Mobile-Economy-Sub-Saharan-Africa-2022.pdf>.

⁸⁰² Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 6.

⁸⁰³ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 6.

⁸⁰⁴ Alexander 2017 <https://ventureburn.com/2017/03/bitpesa-partners-with-bitbond/>.

currency in just twenty minutes.⁸⁰⁵ The solution has already been introduced in Nigeria, Kenya, Uganda, Tanzania and the Democratic Republic of Congo.⁸⁰⁶

With a presence in over 40 countries, Nigerian company SureRemit is another example of a non-monetary remittance service provider using crypto tokens to enable fast and cheap international money transfers and remittances from around the world to Africa,⁸⁰⁷ in partnership with a global network of merchants and partners.⁸⁰⁸

Despite the sharp increase in mobile phone penetration and mobile phone accounts in SSA, an important issue in exploring the use of cryptocurrencies to promote financial inclusion is the ease of use of advanced mobile applications required to operate cryptocurrency accounts. Currently, most mobile phones in the region are feature phones that use USSD to enable mobile transactions, and such phones cannot support advanced mobile applications that rely on an internet connection.

To remedy this, there are innovations such as South African company Machankura, which has made its debut in nine African countries,⁸⁰⁹ make smartphones and internet connections redundant by enabling users to send Bitcoin from any phone via USSD.⁸¹⁰ Via Machankura, users can also make instant payments for the purchase of goods and services.⁸¹¹ Another similar innovation is the Kenya- based company Kotani Pay, which allows users to exchange their stable coins for local currencies of their choice on blockchain platforms.⁸¹²

From the above discussion, it can be concluded that improving financial inclusion in SSA using cryptocurrency solutions requires investment in digital finance education,

⁸⁰⁵ Alexander 2017 <https://ventureburn.com/2017/03/bitpesa-partners-with-bitbond/>.

⁸⁰⁶ Alexander 2017 <https://ventureburn.com/2017/03/bitpesa-partners-with-bitbond/>.

⁸⁰⁷ Africa Money Transfers Date Unknown <https://africamoneytransfers.com/service/sureremit>.

⁸⁰⁸ Africa Money Transfers Date Unknown <https://africamoneytransfers.com/service/sureremit>.

⁸⁰⁹ Machankura 2022 <https://8333.mobi/machankura/user-guide>. Currently, Machankura is live in Ghana, Kenya, Malawi, Namibia, Nigeria, Tanzania, South Africa, Uganda, Zambia.

⁸¹⁰ Munawa 2023 <https://www.coindesk.com/consensus-magazine/2023/04/17/machankura-bitcoin-wallet-without-smartphones-internet/>; <https://8333.mobi/>; Machankura 2022 <https://8333.mobi/machankura/user-guide>.

⁸¹¹ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 8.

⁸¹² Kotani Pay 2023 <https://docs.kotanipay.com/docs>.

improving compatibility with the current payment system, expanding accessibility and ease of use, expanding the network of merchants willing to accept payments in cryptocurrency, including adequate currency exchanges willing to exchange cryptocurrency for local currency.

3.4.2 Facilitating cross-border trade

Cross-border trade is an important aspect of the African economy.⁸¹³ However, factors such as poor infrastructure, high transport costs and limited access to finance prevent the region from realising its full potential for economic growth and development.⁸¹⁴ These obstacles make it difficult for companies to tap into new markets and win new customers to boost their revenue and earnings.⁸¹⁵ To tackle these challenges, a free trade zone was created in 2019 under the African Continental Free Trade Area, which includes fifty-five African Union nations and eight regional trade blocs. The actual implementation of free trade will begin in January 2021.⁸¹⁶ Aimed at boosting intra-African trade,⁸¹⁷ AfCFTA creates a single regional market to eliminate trade barriers⁸¹⁸ and help drive the region's economic transformation and promote recovery from recent economic downturns caused by events such as the Covid-19 pandemic,⁸¹⁹ which revealed weaknesses in the global supply chain.⁸²⁰

⁸¹³ BlockbuildAfrica [https://blockbuild.africa/block chain-cross-border-trade-in-africa/](https://blockbuild.africa/block-chain-cross-border-trade-in-africa/).

⁸¹⁴ Nwanonyiri [https://blockbuild.africa/block chain-cross-border-trade-in-africa/](https://blockbuild.africa/block-chain-cross-border-trade-in-africa/).

⁸¹⁵ Nwanonyiri [https://blockbuild.africa/block chain-cross-border-trade-in-africa/](https://blockbuild.africa/block-chain-cross-border-trade-in-africa/).

⁸¹⁶ AfCFTA 2023 <https://au-afcfta.org/about/>.

⁸¹⁷ AfCFTA 2023 <https://au-afcfta.org/about/>.

⁸¹⁸ UNCTAD "Economic Development in Africa Report 2021: Reaping the Potential Benefits of the African Continental Free Trade Area for Inclusive Growth" 1. "The African Continental Free Trade Area is intended to give new impetus to development efforts in Africa. The draft agreement establishing the African Continental Free Trade Area reflects an explicit commitment to create a framework for deeper socio-economic integration and enhanced cooperation that enables trade, investment and the mobility of people to support industrialisation and the development of a dynamic service sector. Such achievements could ultimately create decent jobs and increase revenues, contributing to inclusive growth on the continent. A greater emphasis on deepening intra-regional trade, cross-border investment in infrastructure and the promotion of "Made in Africa" trade and industrialisation strategies are key to the continent's future prosperity and resilience to global financial, food, climate and pandemic shocks."

⁸¹⁹ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 8; UNCTAD "Economic Development in Africa Report 2021: Reaping the Potential Benefits of the African Continental Free Trade Area for Inclusive Growth" 140. Notwithstanding the fact that the AfCFTA brings the region closer to an integrated market

While the AfCFTA will benefit many segments of the African economy by unleashing innovation, growth and productivity, its potential impact on the MSME sector, which dominates economic activity in the region, is of particular importance.⁸²¹ Since MSMEs have a lot of purchasing power, they are well positioned to benefit from the robust economic activity resulting from open markets facilitated by the removal of trade barriers, thereby increasing MSME revenues and job creation.⁸²² To do this, however, MSMEs need access to affordable financing, which is usually provided by banks.⁸²³ Following the global financial crises of recent years, banks' support for MSMEs through trade-based financing has decreased due to strict anti-money laundering laws, customer knowledge requirements and capital requirements.⁸²⁴ These changes have made the due diligence process more expensive for banks, making the processing of small transactions initiated by MSMEs unprofitable.⁸²⁵

However, the cryptocurrency appears to be well positioned to overcome these challenges.⁸²⁶ With cryptocurrencies, payments can be processed in a matter of seconds across the entire value chain between different players.⁸²⁷ This could in turn accelerate the access of MSMEs engaged in cross-border trade to funding from financial institutions for liquidity purposes.⁸²⁸ One example of this is the cryptocurrency XRP and its cross-border payment network for multiple financial institutions worldwide, which serves as a bridge for two fiat currencies on both sides

on paper, a review of other regional trade agreements shows that their limited success is largely due to failures in trade governance and uncoordinated regulatory systems. For the implementation of the AfCFTA to be successful, a strong, regionally integrated institutional framework must therefore be created to ensure that the implementation of all trade rules and complementary measures is coordinated across the region.

⁸²⁰ Abdella 2021 <https://www.bizcommunity.com/Article/196/841/215919.html>.

⁸²¹ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 8.

⁸²² Abdella 2021 <https://www.bizcommunity.com/Article/196/841/215919.html>.

⁸²³ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 8.

⁸²⁴ Afreximbank 2020 <https://media.afreximbank.com/afrexim/Survey-of-Impact-of-COVID-19-on-African-Trade-Finance.pdf>.

⁸²⁵ Afreximbank 2020 <https://media.afreximbank.com/afrexim/Survey-of-Impact-of-COVID-19-on-African-Trade-Finance.pdf>.

⁸²⁶ Nwanonyiri 2023 <https://blockbuild.africa/block-chain-cross-border-trade-in-africa/>.

⁸²⁷ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 9.

⁸²⁸ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 9.

of a cross-border transaction, within seconds and at low cost for the financial institutions.⁸²⁹

Of course, solutions such as those mentioned above are subject to price volatility. A better way to facilitate cross-border trade could therefore be achieved through stablecoin cryptocurrencies, whose prices are stabilised by being pegged to a fiat currency or group of assets.⁸³⁰ Some stable coins pegged to the US dollar already appear to be used for cross-border trade by African MSMEs.⁸³¹ This is an indication of a growing decentralised financial system based on cryptocurrencies that can offer fast and accessible financial services.⁸³² If this potential is realised, it could likely facilitate MSME participation in the continental and sub-regional trade opportunities presented by the AfCFTA.⁸³³

3.4.3 Facilitating cross-border remittances

The African continent has seen an overall increase in the inflow of remittances throughout the last two decades,⁸³⁴ with the exception of the temporary decline caused by the COVID-19 pandemic in 2020.⁸³⁵ Remittances are an important aspect of the African economy, as many families depend on them for their livelihood and survival.⁸³⁶ While the continent could potentially generate more income from remittances, this potential is tempered by the cost of sending remittances, which is much higher than in other regions of the world.⁸³⁷ Cryptocurrencies have the potential to process transfers faster and more cost-effectively than conventional

⁸²⁹ Ripple <https://ripple.com/solutions/cross-border-payments/>.

⁸³⁰ FATF 2020 <http://www.fatf-gafi.org/publications/virtualassets/documents/report-g20-so-called-stable-coins-june-2020.html>.

⁸³¹ Idris and Karombo 2021 <https://restofworld.org/2021/stable-coins-find-a-use-case-in-africas-most-volatile-markets/>.

⁸³² Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 9.

⁸³³ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 9.

⁸³⁴ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 9.

⁸³⁵ Ratha, Plaza, and Seshan 2021 "Resilience COVID-19 Crisis Through a Migration Lens" 27-28.

⁸³⁶ AfDB 2017 <https://www.afdb.org/fr/news-and-events/remittances-can-harness-africas-development-researchers-say-17678>.

⁸³⁷ World Bank 2022 https://remittanceprices.worldbank.org/sites/default/files/rpw_main_report_and_annex_q222.pdf.

methods, which usually take several days.⁸³⁸ Cryptocurrency-based remittances already have a footprint on the continent.⁸³⁹ The Kenyan company BitPesa, for example, makes it possible to make transfers with Bitcoin by converting a fiat currency into Bitcoin on BitPesa, which then transfers the coins to a mobile money account, where they are converted back into another relevant fiat currency within 2 hours and at a transaction fee of 3%.⁸⁴⁰

Interest and participation in cryptocurrency activities in SSA, particularly in South Africa, Nigeria, Kenya and Ghana, is clearly evident. However, the regulation of cryptocurrencies in the rest of the region remains uncertain, with policy approaches varying and constantly changing as digitalisation increases.

3.4.4 Providing an alternative tax revenue channel

Governments levy taxes and related fees and charges from their tax base⁸⁴¹ generate revenue to finance their economic, political and social goals.⁸⁴² Taxation plays a fundamental role in a country's standard of living, especially in the realisation of global development goals.⁸⁴³ The need to introduce targeted tax revenue frameworks and strategies to maximise tax revenues and minimise tax losses is obvious, especially in Africa.⁸⁴⁴ In December 2022, tax revenues in Africa were lower than in other regions of the world.⁸⁴⁵ In June 2023, public debt in sub-Saharan Africa reached its highest level since the early 2000s and governments are under enormous

⁸³⁸ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 10.

⁸³⁹ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 10.

⁸⁴⁰ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 10.

⁸⁴¹ OECD Date Unknown https://www.oecd-ilibrary.org/taxation/tax-revenue/indicator/english_d98b8cf5-en.

⁸⁴² The World Bank Date Unknown <https://www.worldbank.org/en/topic/taxes-and-government-revenue>.

⁸⁴³ Faha and Folarin 2023 <https://blogs.worldbank.org/africacan/regional-approaches-fight-tax-evasion-and-avoidance-africa>.

⁸⁴⁴ Faha and Folarin 2023 <https://blogs.worldbank.org/africacan/regional-approaches-fight-tax-evasion-and-avoidance-africa>.

⁸⁴⁵ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 11.

pressure to raise revenue or fail and implement austerity measures.⁸⁴⁶ Despite the urgency of its plight, the SSA overlooks tax evasion and avoidance through illicit financial flows, which account for 3.7% of its GDP.⁸⁴⁷

With the increasing globalisation of digital trade and the digital economy, tax evasion and avoidance are likely to increase.⁸⁴⁸ This may make it more difficult for governments to raise much-needed tax revenue.⁸⁴⁹ With the adoption of cryptocurrencies in African countries such as Nigeria, Kenya, Tanzania and South Africa, the region has proclaimed its place among the top 20 countries adopting cryptocurrencies, with a high number of cryptocurrencies traded on peer-to-peer networks,⁸⁵⁰ which is directly reflected in a rapid increase in the value of the cryptocurrency received in the region.⁸⁵¹ With evidence of large-scale participation in cryptocurrency activity in Africa, the potential to lose significant tax revenues from the cryptocurrency market through tax evasion and avoidance is increasing.⁸⁵²

In light of the above, it follows that governments need to broaden their tax base to generate more tax revenue or recover lost tax revenue from financial criminals by including cryptocurrencies, the taxation of which should be subject to the country-specific context, the type of tax and the respective level of applicable tax to enable a balance between tax revenue mobilisation and financial inclusion.⁸⁵³

In Africa, there are only a few countries that have introduced a tax framework and guidelines for the taxation of cryptocurrencies, specifically to combat the effects of tax evasion and avoidance.⁸⁵⁴ As will be seen in the following chapter, South Africa

⁸⁴⁶ Faha and Folarin 2023 <https://blogs.worldbank.org/african/regional-approaches-fight-tax-evasion-and-avoidance-africa>.

⁸⁴⁷ Faha and Folarin 2023 <https://blogs.worldbank.org/african/regional-approaches-fight-tax-evasion-and-avoidance-africa>.

⁸⁴⁸ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 11.

⁸⁴⁹ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 11.

⁸⁵⁰ Chainalysis 2021 <https://go.chainalysis.com/2021-geography-of-crypto.html>.

⁸⁵¹ Chainalysis 2021 <https://go.chainalysis.com/2021-geography-of-crypto.html>.

⁸⁵² OECD 2018 <https://dx.doi.org/10.1787/9789264293083-en>.

⁸⁵³ OECD 2020 D. <https://www.oecd.org/tax/tax-policy/taxing-virtual-currencies-an-overview-of-tax-treatments-and-emerging-tax-policy-issues.htm>.

⁸⁵⁴ Liu, Goni and Mitha "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" 12.

has extended the tentacles of its normal income tax rules to cryptocurrencies. South Africa now requires taxpayers to declare gains and losses from cryptocurrency activities as part of their taxable income.⁸⁵⁵

The preceding discussion has examined the risks and regulatory challenges posed by cryptocurrencies, as well as the evolving responses of financial authorities. These developments have highlighted not only the limitations of existing regulatory frameworks but also the need for central banks to explore more robust alternatives. In this context, the debate on Central Bank Digital Currencies "CBDCs" has gained prominence. CBDCs are increasingly viewed as a potential policy response that could combine the efficiency and innovation associated with cryptocurrencies with the stability, trust, and legal certainty provided by sovereign money. The following section considers the emerging discourse on CBDCs, their rationale, and their implications for the future of the monetary system.

3.5 Central Bank Digital Currencies (CBDCs)

As already discussed above, the financial landscape has evolved rapidly in the wake of the internet.⁸⁵⁶ FinTech has evolved over the last ten years, with cryptocurrencies and CBDCs being among the most recent developments.⁸⁵⁷ Technology has a cross-sectoral impact and is paving the way for what is being created today in finance, telecoms and cyber security.⁸⁵⁸ These technological developments indicate that further changes can be expected in the future.⁸⁵⁹ What is important for the FinTech evolution is the inevitable push towards user empowerment through decentralisation and open standards, in contrast to what can be observed in the traditional financial sector.⁸⁶⁰

In modern times, evolution has brought about a paradigm shift in the world of finance, which has led to new ideas being embedded in technology,⁸⁶¹ and has

⁸⁵⁵ Vumazonke and Parsons 2023 *South African Journal of Economic and Management Sciences* 1.

⁸⁵⁶ See chapter one above.

⁸⁵⁷ Ozili "Central Bank Digital Currency Research Around the World: A Review of Literature" 2.

⁸⁵⁸ Agur, Ari, Dell'Ariccia "Designing Central Bank Digital Currencies" 1.

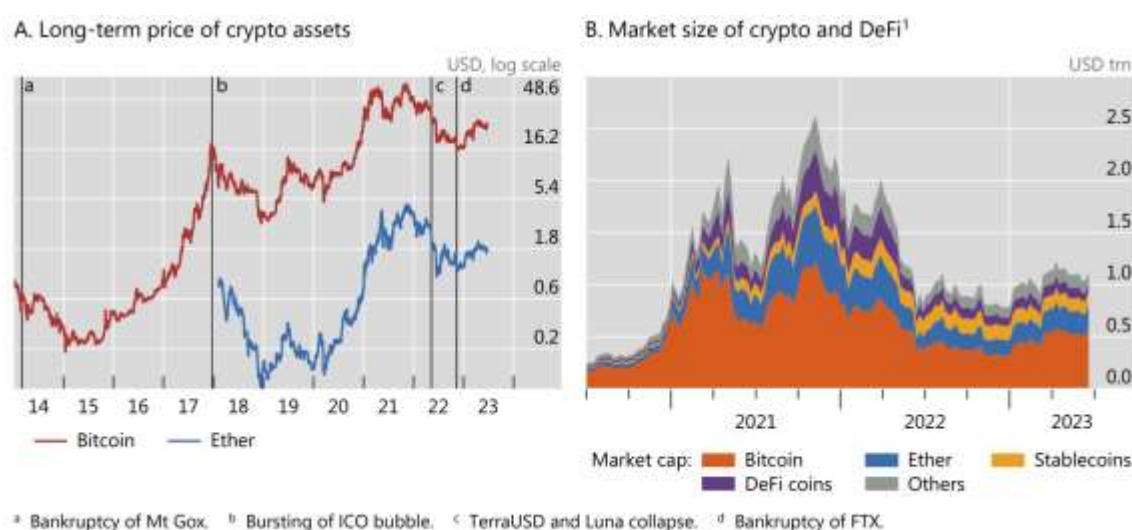
⁸⁵⁹ Agur, Ari, Dell'Ariccia "Designing Central Bank Digital Currencies" 1.

⁸⁶⁰ Setiawan and Maulisa 2019 *Advances in Economics, Business and Management Research* 222.

⁸⁶¹ Arner, Barberis and Buckley 2015 *SSRN eJournal* 15.

forced the traditional financial sector to rethink and modernise its financial products to achieve a competitive edge.⁸⁶² To demonstrate this paradigm shift, the period between 2017 and 2021 signifies a cryptocurrency boom, as evidenced by an influx of cryptocurrencies such as Bitcoin and other private cryptocurrencies.⁸⁶³

Even though their supply was limited, cryptocurrencies were held by some people as a medium of exchange or as an investment asset.⁸⁶⁴ Ultimately, over time, there was a higher demand for cryptocurrencies than what was in circulation, so their price increased significantly, driving up their value and profitability.⁸⁶⁵ The rise in value and profitability could also be due to the fact that people traded cryptocurrencies and took the risk of loss despite the high volatility and unreliability of cryptocurrencies.⁸⁶⁶ The boom in cryptocurrencies is illustrated in the following diagrams.



Sources: Bank for International Settlements (2022); Bloomberg; CoinGecko; Bank for International Settlements.

In chart B, the weekly values are categorised into the seven largest stable coins, 59 DeFi coins and 64 other cryptocurrencies. DeFi coins are defined as the coins issued

⁸⁶² Deutsche Bank Research "Fintech – The Digital (R)evolution in the Financial Sector Algorithm-Based Banking with the Human Touch" 4.

⁸⁶³ Iyer and Popescu "New Evidence on Spillovers Between Crypto Assets and Financial Markets" 15 - 18.

⁸⁶⁴ Iyer and Popescu "New Evidence on Spillovers Between Crypto Assets and Financial Markets" 16.

⁸⁶⁵ Iyer and Popescu "New Evidence on Spillovers Between Crypto Assets and Financial Markets" 16.

⁸⁶⁶ Murry 2023 <https://www.investopedia.com/terms/c/cryptocurrency.asp>.

by DeFi platforms with a market capitalisation to total value ratio of less than fifty. The total locked value is the amount of capital held in the DeFi protocols.

The cryptocurrency boom on display forced regulators to react and take a stand on public participation in cryptocurrencies. Some issued outright bans, while others issued warnings, and still others announced the intention to issue CBDCs as an official alternative currency.⁸⁶⁷ Some regulators have issued CBDCs in response to the circulation of private decentralised cryptocurrencies.⁸⁶⁸

This section introduces CBDCs and the rationale for their issuance in the context of finance and economics. It also looks at their design and their potential future macroeconomic impact.

The rise of digital financial innovations and blockchain-based technologies, the dominance of cryptocurrencies in the digital space,⁸⁶⁹ and the need to curb cryptocurrency-related crime have motivated the development of CBDCs, whose impact on the economy and society could potentially be positive.⁸⁷⁰

CBDCs have been defined differently by different authors.⁸⁷¹ Overall, however, the definitions show that it is digital fiat money issued by the central bank that has a similar function to cash, although it differs from cash in its physical characteristics.⁸⁷² CBDCs can be categorised as a digital financial development that belongs to the financial discipline as it enables the delivery of financial products over the internet using digital devices.⁸⁷³ On the other hand, CBDCs can also be categorised in the

⁸⁶⁷ Baur and Dimpfl 2021 *Empirical Economics* 2678.

⁸⁶⁸ Santaolalla *Do Central Bank Digital Currencies (CBDCs) Protect the Consumer or Are They a Mirage?* 200; IMF "Central Bank Digital Currency: Initial Considerations" 7 – 8. The paper reflects that jurisdictions exploring CBDC have different goals: some are trying to solve current problems, while others are focussing on preparing for a more digital future. Some regions want to use CBDC to address existing problems, such as the high cost of domestic payments. Others, however, are primarily focused on preparing for a future where cash is less common and large, potentially foreign stablecoins or other payment methods become more important and potentially incompatible.

⁸⁶⁹ Roosebeke et al https://mpra.ub.uni-muenchen.de/111006/1/MPRA_paper_111006.pdf.

⁸⁷⁰ Congressional Research Services 2023 <https://crsreports.congress.gov/product/pdf/R/R47425>.

⁸⁷¹ Dionysopoulos, Marra and Urquhart *International Review of Financial Analysis* 2.

⁸⁷² Armellius, Hanna, Claussen et al "On the possibility of a cash-like CBDC" 4.

⁸⁷³ Ozili "Central Bank Digital Currency Research Around the World: A Review of Literature" 4.

monetary economy as a new type of money in the economic system due to the similar characteristics and functions they share with fiat money.⁸⁷⁴

The motivation for central banks to issue CBDCs is complex and includes supporting unconventional monetary policy, maintaining financial stability, increasing financial integration and curbing criminal activity.⁸⁷⁵ The benefits include reducing the demand for paper money, as CBDCs can be used equally as a medium of exchange, a store of value and a cash-like unit of account.⁸⁷⁶ How to reduce the cost of producing and managing cash in the economy.⁸⁷⁷

CBDCs can be either account-based or token-based. The main difference between the two is that account-based CBDCs are tied to an identity system where the sender must first verify the account and the identity of the recipient before they can perform a transaction.⁸⁷⁸ With a token-based account, on the other hand, the authenticity of a token must be verified for every transaction. This is a digital object that represents a certain value and is denominated in the unit of account of the respective country.⁸⁷⁹ While token-based CBDCs can be traded offline, this does not apply to account-based CBDCs, where the successful execution of transactions depends on remote system verification of the account holder and their balance.⁸⁸⁰

Despite the above motives and the potential benefits of CBDCs, the introduction and development of this innovation has been neither rapid nor uniform across the world's central banks.⁸⁸¹ However, most central banks are actively exploring the potential for

⁸⁷⁴ Bank of England "Central Bank Digital Currency Opportunities, challenges and design" 5.

⁸⁷⁵ Auer et al "Central Bank Digital Currencies: Motives, Economic Implications and the Research Frontier" 6-8; IMF "Central Bank Digital Currency: Initial Considerations" 5. "The CBDC has the potential to improve the efficiency and stability of both domestic and international payment systems. It could modernise these systems, strengthen their resilience and — especially in a future where cash is less common — help maintain public confidence in money. In addition, CBDC could promote financial inclusion, stimulate competition and innovation, and improve the speed and transparency of cross-border payments, while facilitating access and reducing costs."

⁸⁷⁶ Bordo and Levin "Central Bank Digital Currency and The Future of Monetary Policy" 19.

⁸⁷⁷ Cecchetti and Schoenholtz "Central Bank Digital Currency: Is it Really Worth the Risk?" 58.

⁸⁷⁸ Auer and Bohme 2020 *Bank for International Settlements Quarterly Review* 88.

⁸⁷⁹ Auer and Bohme 2020 *Bank for International Settlements Quarterly Review* 88.

⁸⁸⁰ Bank for International Settlements "Central Bank Digital Currencies" 4.

⁸⁸¹ Shkliar 2020 *Ukrainian Society* 125 - 126. The author submits that there is no one-size-fits-all solution for CBDC, as this area is still evolving and many questions remain unanswered. The benefits depend on each country's specific situation, design decisions, implementation strategies and regulatory environment. CBDC may not be suitable for every country and potential risks,

issuing CBDCs.⁸⁸² The research is based, among other things, on the topics of CBDCs and financial inclusion, promoting the functions of central banks, their design and financial stability.⁸⁸³

It is common knowledge that developing countries struggle with the financial inclusion of their marginalised populations.⁸⁸⁴ Most efforts are therefore focussed on closing this gap,⁸⁸⁵ and the introduction of CBDCs could well be another measure to broaden the goals of financial inclusion if they are positioned as an attractive alternative currency to complement cash.⁸⁸⁶ While most central banks remain unconvinced of the cost-benefit ratio of CBDCs, developing nations have, however, shown greater enthusiasm for the possible advantages of this innovation for financial inclusion than their counterparts in industrialised countries.⁸⁸⁷

The introduction of CBDCs can promote financial inclusion, e.g. through the digitalisation of the economic value chain.⁸⁸⁸ This will expand the digital economy and widen access to digital financial services, which in turn could improve efficiency and reduce the costs associated with perfecting digital transactions.⁸⁸⁹ Second, by enabling the excluded population to access CBDCs through fintech agents that

such as the impact on the commercial banking sector and operational or reputational issues for central banks, need to be considered. The exploration of CBDC should be approached with caution and in an iterative and systematic manner.

⁸⁸² IMF "How Should Central Banks Explore Central Bank Digital Currency?" 3.

⁸⁸³ IMF "How Should Central Banks Explore Central Bank Digital Currency?" 9.

⁸⁸⁴ Cicchiello et al 2021 *Journal of Innovation and Entrepreneurship* 1-2. According to the article, at present, the financially marginalised population groups are mainly dependent on cash. CBDC can be designed to mimic the desirable characteristics of cash. For example, it could allow users to hold and transfer small amounts without the need for a bank account. In addition, low or no fees could be charged for small transactions and identification requirements could be relaxed to support low-risk individuals who do not have an official ID. CBDC could also be designed for offline use, which would benefit rural areas with unreliable connections. As a direct liability of the central bank, CBDC would likely be more trusted than commercial banks, especially by rural populations who may distrust them. Once CBDCs are adopted by the financially marginalised, they could serve as a gateway to the wider formal financial system.

⁸⁸⁵ Giron et al 2022 *Journal of the Knowledge Economy* 1199.

⁸⁸⁶ Mancini-Griffoli et al "Casting Light on Central Bank Digital Currency" 15.

⁸⁸⁷ Barontini and Holden "Proceeding with Caution – a Survey on Central Bank Digital Currency" 12.

⁸⁸⁸ Ozili 2022 *JMLC* 5.

⁸⁸⁹ Ozili 2022 *JMLC* 5 – 6.

charge lower transaction fees than banks and mobile money providers, and third, by not making holding accounts a prerequisite for accessing their funds.⁸⁹⁰

CBDC harbours great potential for more competition in payment systems and lower costs in payment costs.⁸⁹¹ In certain countries, a few large companies dominate the payment landscape and often charge excessive fees, which makes their services incompatible.⁸⁹² In such cases, the CBDC could promote market discipline, which would lead to better and more affordable services while fuelling innovation.⁸⁹³ In addition, it could serve as a fundamental element for interoperability and enable payment service providers "PSPs" to process transactions with each other via CBDC.⁸⁹⁴

CBDC could also serve as a "backup" for other digital payment systems and thus increase overall resilience.⁸⁹⁵ Digital payment methods are susceptible to disruption from cyberattacks, power outages and various technical failures.⁸⁹⁶ Whilst cash is a helpful alternative for temporary shortfalls, it can be cumbersome and is not well suited to e-commerce and other digital contexts. Furthermore, the use of cash is rapidly declining in some regions.⁸⁹⁷ CBDC could be developed as an alternative payment system that functions independently of existing systems and could therefore act as a reliable backup in the event of major disruptions.⁸⁹⁸ In addition, the CBDC could be designed from the outset to be more resilient than other payment

⁸⁹⁰ Foster "Digital Currencies and CBDC Impacts on Least Developed Countries (LDCs)" 19.

⁸⁹¹ Ricci et al 2024 <https://www.elibrary.imf.org/view/journals/063/2024/001/article-A001-en.xml#:~:text=Improving%20payment%20efficiency%20and%20facilitating,promote%20competition%20within%20payment%20systems>.

⁸⁹² Committee on Payments and Market Infrastructures World Bank Group "Payment Aspects of Financial Inclusion" 8.

⁸⁹³ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 8.

⁸⁹⁴ World Bank "Interoperability between Central Bank Digital Currency Systems and Fast Payment Systems" 9.

⁸⁹⁵ International Monetary Fund "Central Bank Digital Currencies and Financial Stability: Balance Sheet Analysis and Policy Choices" 11.

⁸⁹⁶ See Bank for International Settlements "Central Bank Digital Currency (CBDC) Information Security and Operational Risks to Central Banks" 1-71.

⁸⁹⁷ Syveriges Riksbank 2024 <https://www.riksbank.se/en-gb/payments--cash/payments-in-sweden/payments-report--2024/trends-in-the-payments-market/cash-is-rarely-used-and-the-supply-of-cash-services-is-decreasing/>.

⁸⁹⁸ Bank for International Settlements "Central Bank Digital Currencies: Foundational Principles and Core Features" 1.

systems by integrating new offline technologies and ensuring strong cybersecurity measures.

The CBDC could increase the attractiveness of the domestic currency and help protect monetary sovereignty by addressing issues such as currency substitution and "cryptoisation".⁸⁹⁹ While weak macroeconomic fundamentals, such as poor policies and institutions, are the main drivers of currency substitution, factors such as ease of use and network effects can further encourage the adoption of foreign currencies.⁹⁰⁰ Jurisdictions wishing to minimise or prevent currency substitution could issue their own CBDC to make the domestic currency more attractive, although the impact is likely to be limited.⁹⁰¹ Similarly, the CBDC could help to curb the use of crypto-assets such as stablecoins, especially when they are used for payments, particularly in cross-border transactions.

Central banks play a central role in the economic and financial stability of a country.⁹⁰² They use stabilisation measures such as monetary policy as instruments to counteract economic fluctuations and maintain price stability.⁹⁰³ Monetary policy means adjusting the supply of money by lowering or raising interest rates as needed to influence the desired economic activity.⁹⁰⁴ Since a country's monetary policy is intertwined with its exchange rate system, interest rates influence the value of a country's currency.⁹⁰⁵ A flexible exchange rate system therefore justifies an effective inflation target.⁹⁰⁶ The management of fiat money through central bank monetary

⁸⁹⁹ Das et al "Implications of Central Bank Digital Currencies for Monetary Policy Transmission" 9.

⁹⁰⁰ Das et al "Implications of Central Bank Digital Currencies for Monetary Policy Transmission" 9.

⁹⁰¹ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 15.

⁹⁰² ADBI Central Banking for Financial Stability: Some Lessons from the Recent Instability in the United States and Euro Area 3.

⁹⁰³ Gupta 2003 *Vikalpa: The Journal for Decision Makers* 1.

⁹⁰⁴ IMF 2023 <https://www.imf.org/en/About/Factsheets/Sheets/2023/monetary-policy-and-centralbanking#:~:text=Central%20banks%20conduct%20monetary%20policy,term%20rates%20and%20economic%20activity>.

⁹⁰⁵ IMF 2023 <https://www.imf.org/en/About/Factsheets/Sheets/2023/monetary-policy-and-centralbanking#:~:text=Central%20banks%20conduct%20monetary%20policy,term%20rates%20and%20economic%20activity>.

⁹⁰⁶ IMF 2023 <https://www.imf.org/en/About/Factsheets/Sheets/2023/monetary-policy-and-centralbanking#:~:text=Central%20banks%20conduct%20monetary%20policy,term%20rates%20and%20economic%20activity>.

policy is partly rule-based and partly discretionary, which allows central banks to make effective complex decisions in uncertain times.⁹⁰⁷

However, with the advent of cryptocurrencies, the nature and application of monetary policy could potentially change, as cryptocurrencies are based on a predefined algorithm that essentially makes the decision-making process automatic.⁹⁰⁸ For this reason, cryptocurrency could fail where complex decisions have to be made in times of uncertainty.⁹⁰⁹ The absence of human intervention would also mean that no one could be held accountable for unfavourable decisions made by the machines.⁹¹⁰ This is a major flaw with cryptocurrencies because the proper management of a currency is vital to the financial health of a country and therefore the power to make decisions regarding a currency must be jealously guarded, especially given the exponential growth of cryptocurrencies around the world.⁹¹¹

To facilitate the transparency of monetary policy and ensure its effectiveness, central banks are considering issuing their own digital currencies as a free alternative medium of exchange, reliable store of value and unit of account.⁹¹²

Exploring CBDC is a complex and significant endeavour that requires careful decision-making in a rapidly evolving digital landscape.⁹¹³ Many central banks lack experience with CBDC, especially in managing a consumer product and interacting with end users, as well as utilising new technologies developed by FinTech companies.⁹¹⁴ In addition, some central banks are limited in their resources and only have access to a small selection of service providers.⁹¹⁵

⁹⁰⁷ Claey's et al "Cryptocurrencies and Monetary Policy" 4.

⁹⁰⁸ Claey's, Demertzis and Efstathiou "Cryptocurrencies and Monetary Policy" 2.

⁹⁰⁹ Claey's, Demertzis and Efstathiou "Cryptocurrencies and Monetary Policy" 12.

⁹¹⁰ Claey's, Demertzis and Efstathiou "Cryptocurrencies and Monetary Policy" 12.

⁹¹¹ Claey's, Demertzis and Efstathiou "Cryptocurrencies and Monetary Policy" 12.

⁹¹² Bordo and Levin "Central Bank Digital Currency and the Future of Monetary Policy" 2.

⁹¹³ Soderberg et al "How Should Central Banks Explore Central Bank Digital Currency? - A Dynamic Decision-Making Framework" 3.

⁹¹⁴ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 9.

⁹¹⁵ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 9.

A dynamic decision-making framework would help central banks in their CBDC exploration.⁹¹⁶ This "dynamic" approach should be adaptable, iterative and responsive to the rapidly changing digital and political environment. It differs from other central bank initiatives where there is more experience and less uncertainty.⁹¹⁷ In these cases, it is easier to prepare cost-benefit analyses in advance so that you can concentrate more on implementation later on.⁹¹⁸

CBDC's research comprises two interlinked areas of work.⁹¹⁹ The first, led by a political management team, assesses the CBDC and sets out strategic requirements.⁹²⁰ The second team, which focuses on product development, implements, tests and validates these requirements.⁹²¹ Effective collaboration and communication between these teams is essential to ensuring that the requirements are practical and realisable.⁹²²

The policy management team should consider at least the following six elements in its decision-making framework: policy objectives, risk and impact assessment, capacity for experimentation and implementation, stakeholder engagement, functional requirements, and legal and regulatory considerations.⁹²³

At the outset, clearly defined and prioritised political goals are crucial.⁹²⁴ These objectives should be consistent with central bank mandates, which vary from country to country, and take into account prevailing local conditions.⁹²⁵ A detailed understanding of a country's key objectives is central to making design decisions and

⁹¹⁶ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 9.

⁹¹⁷ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 9.

⁹¹⁸ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 9.

⁹¹⁹ Tourpe et al "A Guide to Central Bank Digital Currency Product Development 5P Methodology and Research and Development" 4.

⁹²⁰ Soderberg et al "How Should Central Banks Explore Central Bank Digital Currency? - A Dynamic Decision-Making Framework" 7-8.

⁹²¹ Tourpe et al "A Guide to Central Bank Digital Currency Product Development 5P Methodology and Research and Development" 4.

⁹²² Tourpe et al "A Guide to Central Bank Digital Currency Product Development 5P Methodology and Research and Development" 4.

⁹²³ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 9.

⁹²⁴ De Lima 2022 <https://www.oliverwymanforum.com/future-of-money/2022/mar/CBDCs-aligning-policy-objectives-and-technology-design.html>.

⁹²⁵ Bank for International Settlements "Central Bank Digital Currency (CBDC) Information Security and Operational Risks to Central Banks: An Operational Lifecycle Risk Management Framework" 5.

assessing the success and risks of pilot projects.⁹²⁶ While these goals may change as countries evolve and learn more about CBDC, the process must always remain transparent.⁹²⁷

In addition to the clearly defined goals, specific success criteria should also be achieved at an early stage.⁹²⁸ These criteria will facilitate the objective evaluation of the CBDC project at regular intervals and will vary according to the different policy objectives.⁹²⁹ For example, goals that focus on financial inclusion will require metrics that relate to adoption rates, whereas goals that focus on payment system resilience will emphasise the continuous availability of CBDC under stress conditions rather than high adoption rates.⁹³⁰

Second, central banks need to develop a clear understanding of macro-financial risks.⁹³¹ A major concern is the possible disintermediation of banks if CBDC competes with bank deposits.⁹³² In financial crises, there is also an increased risk of bank robberies as depositors exchange their money for risk-free central bank money.⁹³³ The structure and condition of the banking sector determine the significance of these risks, the existence of credible deposit insurance and the characteristics of CBDC, such as interest rates and purse limits.⁹³⁴ Countries should always be cautious when issuing CBDC without adequate safeguards. It is imperative that they assess the resilience of their banking sector and conduct rigorous stress tests that take into account different scenarios for the introduction of CBDC.⁹³⁵

Third, central banks should assess their capacity for exploring and potentially issuing CBDC. This includes assessing their digital infrastructure, financial resources and in-

⁹²⁶ World Economic Forum "Central Bank Digital Currency Global Interoperability Principles" 5.

⁹²⁷ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 10.

⁹²⁸ International Monetary Fund <https://www.imf.org/en/Topics/fintech/central-bank-digital-currency/virtual-handbook>.

⁹²⁹ International Monetary Fund <https://www.imf.org/en/Topics/fintech/central-bank-digital-currency/virtual-handbook>.

⁹³⁰ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 10.

⁹³¹ Bindseil and Senner "Macroeconomic Modelling of CBDC: A Critical Review" 10-11.

⁹³² Bidder, Jackson, and Rottner "CBDC and Banks: Disintermediating Fast and Slow" 2.

⁹³³ Ahnert, Hoffmann, Leonello, and Porcellacchia "Central Bank Digital Currency and financial stability" 2.

⁹³⁴ Luu, Nguyen, Nasir 2023 *Journal of International Financial Markets, Institutions & Money* 1-3.

⁹³⁵ Bank for International Settlements "Central Bank Digital Currencies: Financial Stability Implications" 14-17.

house expertise in areas such as project management, IT, cybersecurity, design, legal services and regulation.⁹³⁶ When gaps in resources are identified, central banks must decide how to bridge them, options usually include partnerships, recruitment or developing internal capabilities.⁹³⁷

Fourthly, it is important for central banks to identify key stakeholders and develop a strategy for working with them.⁹³⁸ Stakeholders include public authorities and private sector players such as payment service providers (PSPs), merchants and end consumers. Working with stakeholders helps to gain insights into the challenges CBDC could address, the desired functions and the potential risks.⁹³⁹ Building trust among these stakeholders is crucial for the introduction of CBDCs. Therefore, central banks should encourage informed public discussions.⁹⁴⁰

Fifth, based on the previous steps, the policy management team should outline the key functional requirements to achieve the objectives, mitigate risks, align with internal capabilities and fulfil user needs.⁹⁴¹ Feature requirements can be categorized into four groups: that is, mandatory principles like compliance with laws and security features, a high-level operating model detailing the roles of the central bank and private sector, key functionalities addressing user needs and policy goals, such as offline payments for financial inclusion, and interoperability features to ensure compatibility with other financial services and systems.⁹⁴²

These functional specifications should be adaptable and flexible enough to accommodate changes in the payment landscape and user requirements.⁹⁴³ As requirements may change during the research process due to new innovations or

⁹³⁶ Bank for International Settlements "Central Bank Digital Currencies" 9-10.

⁹³⁷ International Monetary Fund "Central Bank Digital Currency: Initial Considerations" 10.

⁹³⁸ Koonprasert et al "Central Bank Digital Currency Adoption: Inclusive Strategies for Intermediaries and Users" 19-20.

⁹³⁹ Koonprasert "Central Bank Digital Currency Adoption: Inclusive Strategies for Intermediaries and Users" 8.

⁹⁴⁰ Horvath 2023 *Sustainable Futures* 5.

⁹⁴¹ Bank for International Settlements "Central Bank Digital Currencies: User Needs and Adoption" 7.

⁹⁴² Koonprasert et al "Central Bank Digital Currency Adoption: Inclusive Strategies for Intermediaries and Users" 21-24.

⁹⁴³ International Monetary Fund "Positioning Central Bank Digital Currency in the Payments Landscape" 22.

changing user expectations, they should not prescribe specific technologies or user interfaces.⁹⁴⁴

Sixth, a solid legal framework and sound regulatory standards, backed by strong, independent institutions, must serve as the basis for the issuance and distribution of CBDCs.⁹⁴⁵ It takes time to build these pillars. Therefore, central banks had to conduct a preliminary investigation before deciding to issue CBDCs.⁹⁴⁶ It is crucial that lawyers are involved at an early stage to clarify important issues such as the legal basis for the issuance of CBDCs, the regulatory and supervisory structure required for their operation and the necessary legislative changes to ensure transaction security.⁹⁴⁷ The cross-border use of CBDC raises additional legal issues that should be carefully considered.⁹⁴⁸

Effective governance is essential to ensure respect for rights and reduce the risks of corruption.⁹⁴⁹ To protect financial integrity, central banks must also take the necessary steps, starting with identifying vulnerabilities related to terrorist financing and money laundering and implementing appropriate measures such as reporting suspicious behaviour and conducting due diligence on customers.⁹⁵⁰ An inadequately designed CBDC could exacerbate a country's vulnerabilities in the fight against terrorist financing "CFT" and money laundering "AML".⁹⁵¹

Strong institutional, legal and technological measures that protect user privacy and ensure compliance with AML/CFT standards must be implemented to promote trust

⁹⁴⁴ International Monetary Fund "Positioning Central Bank Digital Currency in the Payments Landscape" 22.

⁹⁴⁵ International Monetary Fund "IMF Approach to Central Bank Digital Currency Capacity Development" 15.

⁹⁴⁶ Soderberg et al "How Should Central Banks Explore Central Bank Digital Currency? A Dynamic Decision-Making Framework" 6,9.

⁹⁴⁷ See Bank for International Settlements "Central Bank Digital Currencies: Legal Aspects of Retail CBDCs" 1-29.

⁹⁴⁸ World Bank Group "Central Bank Digital Currencies for Cross-border Payments a Review of Current Experiments and Ideas" 24-26.

⁹⁴⁹ International Monetary Fund "Central bank Digital Currency: Initial Considerations"11.

⁹⁵⁰ Financial Intelligence Unit of Latvia "The AML/CFT Implications of Central Bank Digital Currency and the Digital Euro" 29-30.

⁹⁵¹ Bank for International Settlements "Options for Access to and Interoperability of CBDCs for Cross-border Payments" 2.

in CBDC.⁹⁵² Payments contain a range of information, e.g., about the transaction, the persons involved and the purpose of the transaction.⁹⁵³ When it comes to who collects, stores and uses their data, users have different preferences.⁹⁵⁴

Different nations and social groups have different privacy preferences, and the extent to which CBDC protects user privacy will have a major impact on its popularity.⁹⁵⁵ Just as important as choosing the right technology to restrict access to data is having open and honest conversations about data privacy.⁹⁵⁶

If alternative digital payment methods are developed, CBDCs have the potential to improve payment systems and preserve the value of central bank currency. However, the appropriateness of CBDCs will of course depend on the unique circumstances of each nation. Given the complexity and novelty of the concept, policymakers must proceed cautiously and methodically when exploring CBDCs to ensure success.

3.6 Conclusion

Cryptocurrencies represent a transformative innovation in the global financial landscape, offering opportunities to enhance efficiency, reduce transaction costs, promote financial inclusion, and support privacy and technological innovation. Their emergence has introduced new participants, reshaped financial interactions, and challenged traditional conceptions of money, highlighting both the promise and complexity of digital assets.

At the same time, cryptocurrencies carry significant risks, including volatility, potential misuse for illicit activities, and regulatory uncertainties, which underscore the need for careful oversight. Central Bank Digital Currencies "CBDCs" have emerged as a policy-driven alternative that seeks to combine the efficiency and innovation of digital assets with the stability, legal certainty, and consumer

⁹⁵² Bank for International Settlements "Options for Access to and Interoperability of CBDCs for Cross-border Payments" 2.

⁹⁵³ International Monetary Fund "Central bank Digital Currency: Initial Considerations" 12.

⁹⁵⁴ International Monetary Fund "Central bank Digital Currency: Initial Considerations" 12.

⁹⁵⁵ World Economic Forum 2021
https://www3.weforum.org/docs/WEF_Privacy_and_Confidentiality_Options_for_CBDCs_2021.pdf

⁹⁵⁶ Murphy et al <https://www.elibrary.imf.org/view/journals/063/2024/004/article-A001-en.xml>.

protections offered by sovereign money. Taken together, cryptocurrencies and CBDCs illustrate the evolving dynamics of money, payments, and regulation. The following chapters examine how South Africa and other selected jurisdictions are responding to these developments, highlighting the regulatory approaches, challenges, and lessons learned from both domestic and international experiences.

CHAPTER 4: THE LEGAL AND REGULATORY RESPONSE TO CRYPTOCURRENCY: SOUTH AFRICA

4.1 Introduction

As we have already seen in the previous chapter, the decentralisation of cryptocurrencies excludes them from the laws and regulations that apply to fiat currencies. Thus, the inherent risks associated with cryptocurrencies, as discussed in the previous chapter, are exacerbated by the apparent lack of regulation.

Economic theory teaches us that a well-functioning monetary system promotes economic growth.⁹⁵⁷ This realisation and the consequences of financial crises such as the recent subprime mortgage crisis of 2007 have necessitated supervisory and regulatory reforms within the international monetary system in order to maintain financial stability after the crisis.⁹⁵⁸ However, while the emergence of cryptocurrencies is associated with the systemic failure of the international monetary system, which was highlighted by the 2007 crisis,⁹⁵⁹ financial regulators worldwide largely failed to implement dedicated cryptocurrency laws until very recently, despite the crypto sector's rapidly growing influence on financial services.

Instead, most jurisdictions had issued warnings either through their central banks,⁹⁶⁰ or imposed restrictions on the financial services sector against the facilitation of

⁹⁵⁷ Mohan, Debabrata and Kapur "The International Monetary System: Where are we and Where Do We Need to Go?" 4. The International Monetary System relies on a detailed structure of regulations and supporting entities that allow it to promote international trade and the movement of capital amongst countries in a stable environment.

⁹⁵⁸ As discussed in the previous chapters.

⁹⁵⁹ Pravdiuk 2021 *Norwegian Journal of Development of the International Science* 31. As illustrated in detail in the preceding chapters.

⁹⁶⁰ The Law Library of Congress "Regulation of Cryptocurrency Around the World" 1. In short, the nature of the warnings is mainly to educate citizens about the currency that is legally recognised in their jurisdiction and covered by the law, including their jurisdiction's explanation of the status of cryptocurrencies as well as the risks associated with participating in cryptocurrency trading and related activities. Countries such as China, India, and members of the European Union were among the first to raise concerns, citing issues like volatility, fraud, and misuse. In 2013, the People's Bank of China restricted financial institutions from handling Bitcoin, and India's central bank similarly cautioned about the risks of virtual currencies. Around the same time, European regulators began warning that digital currencies posed potential threats to financial stability. Other early voices of caution emerged from Japan, South Korea, Singapore, Australia, and New Zealand, where central banks and financial authorities described Bitcoin as a speculative bubble, not a credible currency. In Africa, regulators in Kenya, Ghana, and Lesotho warned citizens that

cryptocurrency trading and related activities.⁹⁶¹ On the other hand, some countries saw the value of cryptocurrencies and have extended the scope of their existing anti-money laundering and anti-terrorist financing laws to include cryptocurrency transactions and markets, rather than banning their use entirely.⁹⁶²

"Why regulate?" is the central theme and focus of this chapter. While the importance of financial market regulation was discussed in the previous chapters, the current chapter deals with the detailed objectives of financial market regulation. The aim is to assess whether the current international monetary system is effectively structured to achieve these objectives. If not, it will explore the possibility of restructuring the existing legal and regulatory framework to ensure that the objectives of financial regulation are met, particularly with regard to the introduction of cryptocurrencies into the financial landscape.⁹⁶³

Against this background, this chapter analyses the current legal situation in South Africa with regard to the regulation of cryptocurrencies.

4.1.1 Rationale for financial regulation

To set the scene, this paper defines financial regulation and the concepts associated with it before looking at its rationale. This is particularly important as, for the purposes of this paper, the term financial regulation is used as an umbrella term encompassing regulation, supervision and oversight.

cryptocurrencies were unregulated and risky. Meanwhile, Bolivia, Vietnam, Ecuador, and Algeria went even further, issuing outright bans on cryptocurrency activity.

⁹⁶¹ BBC News 2021 <https://www.bbc.com/news/technology-58678907>; Bank of Russia "Cryptocurrencies: Trends, Risks and Regulation" 30. For example, China has adopted a blanket ban on all cryptocurrency related transactions and mining, with the People's Bank of China citing these activities as 'illegal financial activities'. Russia, on the other hand, has made proposals via its central bank to limit cryptocurrency transactions in Russia in order to minimise the systemic risks associated with cryptocurrencies.

⁹⁶² The Law Library of Congress "Regulation of Cryptocurrency Around the World" 1.

⁹⁶³ It is noteworthy that the study only refers to the rationale for financial regulation to provide a basic understanding of the proposals made in the study for the regulation of cryptocurrencies. It does not attempt to discuss in detail the various alternative approaches to regulating the financial services sector.

Financial regulation refers to the establishment of specific and binding rules issued by a regulatory body, which govern financial institutions.⁹⁶⁴ *Monitoring* entails regular oversight of financial institutions to ensure these rules are always observed.⁹⁶⁵ *Supervision*, on the other hand, refers to the observation of the general conduct of financial institutions to ensure they operate in a safe, stable and sound environment.⁹⁶⁶

Although the above concepts are interconnected, ideally each of the roles is performed by a separate entity.⁹⁶⁷ In some jurisdictions, however, the behaviour of the financial services sector is regulated and supervised by a single body, usually the central banks.⁹⁶⁸ Notwithstanding this apparent lack of a universal system or theory by which the financial services sector is regulated in the various jurisdictions,⁹⁶⁹ the international community agrees that the financial services sector plays a crucial role in promoting global economic growth and development.⁹⁷⁰

The reason for regulating the financial sector is therefore that, unlike other industries, failure to regulate the financial services sector could lead to market failure, which in turn could result in serious economic crises.⁹⁷¹

There are three complementary perspectives on financial regulation, namely the philosophy, the principles and the objectives.⁹⁷² Firstly, the general philosophical perspective refers to the widely accepted norms and conventions of the financial world of a particular country, including the ideologies of the political authorities when

⁹⁶⁴ Falkena, Bamber, et al "Financial Regulation in South Africa" 2; Mwenda "Legal Aspects of Financial Services Regulation and the Concept of a Unified Regulator" 5. According to Mwenda, in the financial services sector these rules include: "Such prudential rules as those influencing the conditions of access to the market (intended to prevent the emergence of entities with doubtful reputation or without financial capacity necessary for the operations they intend to implement) and those aimed at controlling the risks associated with financial activities, corporate governance and internal control systems, conduct-of-business rules, and methods of supervision."

⁹⁶⁵ Llewellyn "The Economic Rationale for Financial Regulation" 6.

⁹⁶⁶ Federal Reserve Bank "Supervising and Regulating Financial Institutions and Activities" 74.

⁹⁶⁷ Madise 2014 *SSRN Electronic Journal* 4.

⁹⁶⁸ Mwenda "Legal Aspects of Financial Services Regulation and the Concept of a Unified Regulator" 6-7.

⁹⁶⁹ Madise 2014 *SSRN Electronic Journal* 4.

⁹⁷⁰ The University of Warwick Commission "Why Regulate?" 9.

⁹⁷¹ Llewellyn "The Economic Rationale for Financial Regulation" 7.

⁹⁷² Falkena, Bamber, et al "Financial Regulation in South Africa" 1.

it comes to regulating the financial sector.⁹⁷³ This approach also describes the reasons for regulation.⁹⁷⁴

The second perspective refers to the ultimate goal of financial sector regulation, which is to achieve economic efficiency, financial stability and consumer protection.⁹⁷⁵ The third perspective on financial market regulation is the principles that guide the formulation of regulatory policy, regulatory requirements and the structure of regulatory institutions.⁹⁷⁶ These principles are based both on the general philosophy mentioned above and on the objectives and can be categorised as either efficiency-related, stability-related, conflict-settling, prudential-structural or general.⁹⁷⁷

Following on from the above discussion, the following section explains in more detail the more general and specific objectives of financial regulation as a key aspect of this chapter. A separate discussion of the other perspectives of financial market regulation would go beyond the scope of this thesis and will therefore not be attempted.

4.1.2 Objectives of financial regulation

It is important to examine the objectives of financial regulation as the structure of cryptocurrencies raises concerns about the adequacy of the current legal and regulatory framework to govern the financial system with the introduction of a new player in the current environment.⁹⁷⁸ These concerns can be understood in the context of the three core objectives of financial regulation, namely, efficiency, fairness and stability.⁹⁷⁹ Firstly, cryptocurrencies have been linked to inefficiencies in capital allocation in the financial sector.⁹⁸⁰ Secondly, cryptocurrencies can create a favourable environment for actors who abuse consumers.⁹⁸¹ Thirdly, technologies

⁹⁷³ Falkena, Bamber, et al "Financial Regulation in South Africa" 1.

⁹⁷⁴ Falkena, Bamber, et al "Financial Regulation in South Africa" 1.

⁹⁷⁵ Botha and Makina 2011 *International Business & Economics Research Journal* 27.

⁹⁷⁶ Botha and Makina 2011 *International Business & Economics Research Journal* 27.

⁹⁷⁷ Botha and Makina 2011 *International Business & Economics Research Journal* 27.

⁹⁷⁸ Brummer and Yadav 2019 *The Georgetown Law Journal* 277-278.

⁹⁷⁹ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 175.

⁹⁸⁰ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 175.

⁹⁸¹ Vives 2017 *European Economy Institutional Papers* 105.

such as cryptocurrencies increase the likelihood of systemic risk, which can impact the entire economy.⁹⁸²

As mentioned at various points in this paper, cryptocurrencies embody a welfare-enhancing yet disruptive ability to shake up the status quo in the financial services sector for the benefit of the economy as a whole. Equally pertinent is their welfare-reducing characteristic of decentralisation, which gives rise to the above concerns that have now become the cornerstones of modern financial regulation.⁹⁸³

Without comprehending how cryptocurrencies affect the goals of financial regulation, legislators will struggle to create laws that effectively tackle the distinct threats cryptocurrencies pose to the financial services industry. To reap the benefits of cryptocurrencies without jeopardising financial stability, legislators must therefore take the opportunity to learn about them.

Against this background, the core objectives of financial market regulation are discussed in detail below.

4.1.2.1 Capital allocation efficiencies

One of the core functions of the financial sector is the allocation and redistribution of capital between its players in order to promote efficiency.⁹⁸⁴ However, capital allocation is not always optimal due to market inefficiencies,⁹⁸⁵ resulting from

⁹⁸² Vives 2017 *European Economy Institutional Papers* 104.

⁹⁸³ Observably, digitalisation brings with it new market players, technologies and innovations. It can be argued that it also poses new challenges for legislators and regulators. Thus, they must manage the risks to the stability and integrity of the financial system without stifling innovation. As a result, consumer protection and the promotion of competition and innovation have become top priorities for legislators in recent years as digitalisation accelerates.

⁹⁸⁴ Fama 1980 *Journal of Monetary Economics* 39. Fama postulates that while owners of capital may have financial muscle, they do not necessarily always know how to use their money wisely, and while users of capital may have ideas about how to utilise capital, they do not always have the financial muscle to put their plans into action. Financial service providers therefore mediate between capital owners and capital users by taking deposits and lending them to borrowers who need the money – thus activating the economy and creating a balance.

⁹⁸⁵ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 176.

information asymmetries, market psychology and cognitive distortions, among other things.⁹⁸⁶

Fintechs such as cryptocurrencies promise to remedy these inefficiencies in various ways.⁹⁸⁷ Their whole selling point is that they enable participants to conduct transactions with fewer delays and lower costs by cutting out middlemen.⁹⁸⁸ The abolition of intermediaries also makes it possible to distribute market power among several participants, thereby reducing monopolies.⁹⁸⁹ In the Fintech system, decisions are automated, which reduces the likelihood of cognitive biases influencing financial decisions.⁹⁹⁰

At first glance, these characteristics suggest that fintech will increase efficiency in the financial sector. However, a closer look reveals that the risks created by fintech are particularly accentuated due to their novel and volatile nature and can even reduce efficiency.⁹⁹¹

First, while the above-mentioned spread of market power promotes competition as more players participate in the market, it is doubtful that cooperation will be achieved among many players who are widely dispersed and do not see each other, as is characteristic of fintechs, in terms of willingness to adopt best practise standards and collective sanctioning of bad behaviour by players.⁹⁹² In the traditional financial sector, however, it is easier to take collective action to develop best

⁹⁸⁶ Hayes 2022 <https://www.investopedia.com/terms/i/inefficientmarket.asp>. These behaviours lead to the wrong value being placed on assets, resulting in either excessive gains or losses.

⁹⁸⁷ A detailed discussion on the advantages of cryptocurrencies was undertaken in Chapter 3 above. See fn. 288.

⁹⁸⁸ A detailed discussion on the advantages of cryptocurrencies was undertaken in Chapter 3 above. See fn. 282.

⁹⁸⁹ A detailed discussion on the advantages of cryptocurrencies was undertaken in Chapter 3 above. See fn. 331.

⁹⁹⁰ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 177.

⁹⁹¹ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 177.

⁹⁹² Magnuson 2018 *Stanford Journal of Law, Business & Finance* 177-178; Olson *The Logic of Collective Action: Public Goods and the Theory of Groups* 3. Olson explains that rational and self-interested individuals within a group who benefit from working together to achieve their common goal are in fact not voluntarily working to achieve that common goal.

practises to promote a sound system, as the players know each other and are accountable to a central authority.⁹⁹³

Secondly, automated decision-making renders Fintechs susceptible to model risk.⁹⁹⁴ The machines make all their decisions based on data that has been pre-programmed by humans, and if the data has been entered with errors or false assumptions, the machines that process this data will inevitably make wrong decisions to the detriment of the actors.⁹⁹⁵ This is due to the speed with which the machines make a decision and the fact that humans no longer intervene in this decision-making process once the machine has been programmed.⁹⁹⁶ Reprogramming the systems to make them more accurate could possibly only be done afterwards.⁹⁹⁷

Thirdly, the volatility and speed of adaptation of fintech can also lead to inefficiencies in capital allocation.⁹⁹⁸ The rapid market entry and exit of new Fintech players increases information asymmetries between participants, leading to market failures.⁹⁹⁹ Information asymmetries exist within a market when some participants have more knowledge than others.¹⁰⁰⁰ This usually occurs during a transaction in which the seller is superior to the buyer in terms of product or service knowledge, or in rare cases vice versa.¹⁰⁰¹

Over time, information asymmetries can be bridged and reduced to an acceptable level as more and more information about a market and its players becomes available to a wider audience.¹⁰⁰² In Fintech, however, the rapid changes in the market mean that market participants do not necessarily have enough time to

⁹⁹³ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 178.

⁹⁹⁴ Yadav 2015 *Vanderbilt Law Review* 1647-1652.

⁹⁹⁵ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 178.

⁹⁹⁶ Yadav 2015 *Vanderbilt Law Review* 1612.

⁹⁹⁷ Yadav 2015 *Vanderbilt Law Review* 1613.

⁹⁹⁸ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 179.

⁹⁹⁹ Barbaroux 2014 *Journal of Innovation and Entrepreneurship* 1.

¹⁰⁰⁰ Barbaroux 2014 *Journal of Innovation and Entrepreneurship* 3.

¹⁰⁰¹ Barbaroux 2014 *Journal of Innovation and Entrepreneurship* 3.

¹⁰⁰² In the fiat money system, for example, information asymmetries are not as severe, as most information about financial service providers and their products and services is public and regulators regularly inform consumers about their rights and obligations when dealing with these providers.

overcome the challenges of information asymmetry.¹⁰⁰³ Cryptocurrencies in particular are based on different infrastructures and programming languages.¹⁰⁰⁴ Users must therefore familiarise themselves with the specific currency in which they wish to invest in order to understand its structure in advance.¹⁰⁰⁵ This can be complicated, as the information about how cryptocurrencies work is not easy for the average person to understand. This can lead users to make assumptions based on the little knowledge they have, rather than rationally and optimally analysing the fundamentals of the currency.¹⁰⁰⁶ Even in cases where information asymmetries can be bridged, the time and resources spent on the learning process itself make it costly to invest in new innovations as soon as they are invented.¹⁰⁰⁷

From the previous discussion, it can be deduced that well-established markets clearly offer players better opportunities for learning than many fintech markets due to repeated interactions and observed behaviour. Fintech markets can be more volatile and prone to information asymmetries that hinder fair and informed trading. They can also lead to slow adoption of best practise principles.

These concerns point to the need to regulate fintechs in order to improve the efficiency of fintech markets.

4.1.2.2 Consumer protection

In addition to efficiency, another focus of financial regulation is the promotion of market integrity and investor protection.¹⁰⁰⁸ Based on the principle of fairness, regulators seek to protect consumers and investors alike from unfair and illegal behaviour that costs them their money, infringes their rights or both.¹⁰⁰⁹ Many of the consumer protection concerns that exist in the traditional financial services sector are also present in the fintech market, albeit in an exacerbated form.¹⁰¹⁰ For example,

¹⁰⁰³ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 179.

¹⁰⁰⁴ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 180.

¹⁰⁰⁵ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 180.

¹⁰⁰⁶ Moniruzzaman, Chowdhury, and Ferdous 2020 *LNICST* 631-632.

¹⁰⁰⁷ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 180.

¹⁰⁰⁸ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 180.

¹⁰⁰⁹ Brummer and Yadav 2019 *The Georgetown Law Journal* 244.

¹⁰¹⁰ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 181.

Fintechs can lead to increased concerns about data protection. As more and more customer data is stored on many computers around the world, it becomes more vulnerable to leaks from hackers or other misuse, among other things.¹⁰¹¹ So the need for privacy, data protection and cyber security laws to protect consumers from the disclosure or misuse of their personal data could never be clearer.¹⁰¹²

However, other concerns such as speed and ease of access are unique to the Fintech market.¹⁰¹³ The speed associated with cryptocurrency transactions, for example, could lead to consumers making hasty and uninformed financial decisions.¹⁰¹⁴ The same applies to the aspect of easy access to cryptocurrencies, as the lack of financial intermediaries makes it easy for bad actors to enter the market and manipulate it to the detriment of consumers.¹⁰¹⁵

In addition, the anonymity of fintech transactions potentially increases the prevalence of crimes such as fraud and tax evasion, as criminals know that it will be difficult to trace the actions back to them.¹⁰¹⁶ The ability of criminals to circumvent the law through the use of fintechs is also likely to cause great harm to consumers.¹⁰¹⁷

Financial regulation in the traditional financial services industry has long sought to eradicate these challenges, and its presence in the fintech market is a cause for concern.

4.1.2.3 Systemic stability

Beyond efficiency and consumer protection, financial regulation also aims to promote systemic stability.¹⁰¹⁸ This is because the financial sector is the lifeblood of any economy and, due to globalisation, any challenge experienced by an individual

¹⁰¹¹ Murphy and Barton 2014 *Intellectual Property and Technology Law Journal* 12-13.

¹⁰¹² Magnuson 2018 *Stanford Journal of Law, Business & Finance* 182.

¹⁰¹³ The advantages of cryptocurrencies as a sub-set of Fintechs were discussed in detail in chapter 3 above.

¹⁰¹⁴ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 182.

¹⁰¹⁵ Fontenay 2013 *Review of Banking and Financial Law* 136. The article describes the role of financial intermediaries as gatekeepers.

¹⁰¹⁶ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 183.

¹⁰¹⁷ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 184.

¹⁰¹⁸ Arner, Barberis and Buckley 2017 *Northwestern Journal of International Law & Business* 371.

economy has a ripple effect on the entire global economy.¹⁰¹⁹ To ensure global economic growth, economies must therefore be strong and able to withstand any shocks.¹⁰²⁰ This is made possible by regulations that are specifically designed to minimise risks and their effects.¹⁰²¹

Due to their nature, fintechs escape regulatory scrutiny with regard to systemic risks. However, it is clear that fintechs bring with them a number of challenges that could potentially lead to systemic failure.¹⁰²² They may be smaller in terms of assets, headcount or profits and have a lower loss exposure in the event of shocks than traditional banks, for example,¹⁰²³ their higher probability of quickly succumbing to shock is greater,¹⁰²⁴ thus increasing systemic risk concerns within the fiat monetary system as well. This is because the more Fintechs are integrated into the financial system, the more pathways for the spread of shocks are created.¹⁰²⁵

As discussed in earlier parts of this paper, unlike the traditional financial sector, the Fintech market has a large number of players, which makes it difficult for regulators to monitor the behaviour of participants.¹⁰²⁶ This is because regulators need to

¹⁰¹⁹ Blinder 2010 *International Journal of Central Banking* 279.

¹⁰²⁰ Falkena, Bamber, et al. "Financial Regulation in South Africa" 2. "An example of this is the financial crisis of 2008, which has already been discussed in detail in the previous chapters. It originated in the US, where lax lending regulations caused a property bubble that later led to the sub-prime mortgage crisis that affected not only the US but many other countries around the world, including South Africa. However, due to financial regulation in South Africa at the time, the country was well positioned to overcome some of the challenges associated with the crisis – only certain sectors of the economy were affected. In response to the crisis, South Africa introduced the Twins Peak model of financial regulation, which provides for two regulators responsible for maintaining the stability of the financial system and for market conduct and consumer protection. This model is discussed in detail in the following sections."

¹⁰²¹ Allen 2015 *Ohio State Law Journal* 1108.

¹⁰²² Judge 2017 *Harvard Business Law Review* 334.

¹⁰²³ Vigna and Casey *The Age of Cryptocurrency: How Bitcoin and the Block chain Are Challenging The Global Economic Order* 268; Statista 2021 <https://www.statista.com/statistics/295496/wells-fargo-full-time-employees/>. The article makes an example of Mt Gox, a Tokyo-based cryptocurrency exchange that filed for bankruptcy in 2014, and handled 70% of the world's Bitcoin transactions with an average of 36 employees before it went under. In contrast, Wells Fargo, a traditional bank, had around 249,440 employees in 2021. While Wells Fargo has suffered repeated setbacks due to the cross-selling scandal in 2016 and continuous losses in the form of lawsuits and fines, the company remains operational, while Mt. Gox ceased operations in 2014 after a hacking incident. It can be concluded from this that fintech players are more susceptible to rapid and negative shocks.

¹⁰²⁴ Magnuson 2018 *Vanderbilt Law Review* 1190.

¹⁰²⁵ Gubler 2012 *Alabama Law Review* 221, 252-253.

¹⁰²⁶ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 187.

identify all the players in the Fintech market, many of whom make computerised decisions, and understand their respective risks.¹⁰²⁷ Due to resource constraints, this could prove to be a mammoth task for regulators. Without an appropriate level of oversight or supervision, Fintechs are more likely to engage in risky behaviour undetected.¹⁰²⁸

For all these reasons and more, the systemic risks posed by Fintechs are very different from those posed by traditional financial institutions. In short, these risks are a consequence of Fintech' reliance on automation and their volatility. These risks will most likely increase as more innovations are accepted and integrated into the economy. This is truer as existing financial regulation is designed to minimise the systemic risk of traditional financial institutions and is not suited to adequately address the systemic risk of Fintechs.

The above discussion shows that financial regulation needs to be rethought in a technologically advanced age, especially due to the greater acceptance of cryptocurrencies in recent years. Thus, regulators have had to recognise cryptocurrencies as new players in their markets and respond accordingly to protect existing participants.

To answer the call, some regulators have proactively taken regulatory action targeting key priority areas such as money laundering and terrorist financing, consumer protection, tax evasion and fraud,¹⁰²⁹ successfully integrated the regulation of cryptocurrencies into their existing legal framework, while some regulators have not.

Against this backdrop, the following section examines South Africa's position, outlining its evolving regulatory and policy response to cryptocurrencies.

¹⁰²⁷ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 187.

¹⁰²⁸ Magnuson 2018 *Stanford Journal of Law, Business & Finance* 187.

¹⁰²⁹ Arnfield *Virtual Currency Today, Regulation of Virtual Currencies: A Global Overview* 3.

4.2 South Africa's Financial regulators' position on cryptocurrency

As cryptocurrencies reached South African shores and their popularity grew, South African financial regulators examined the innovation with much scepticism and caution to understand its risks and benefits to financial sector stability and consumer protection.¹⁰³⁰ The reason for this was that the popularity of cryptocurrencies was surrounded by much speculation about their future, not only in South Africa but also around the world.¹⁰³¹ As a result, financial regulators have been prompted to issue guidance on the treatment of cryptocurrencies, each adopting a different strategy for cryptocurrency regulation grounded in their respective unique mandates.¹⁰³² A detailed discussion unfolds below.

4.2.1 The South African Reserve Bank (SARB)

The SARB is responsible for regulating and overseeing registered banks to maintain the stability of the South African banking industry.¹⁰³³ As such, the SARB is authorised to publish papers from time to time setting out its position on issues affecting the South African payment system.¹⁰³⁴ While the position papers are not legally binding, they contain applicable policy approaches and procedures that industry stakeholders refer to and consider as reliable guidance from the SARB as a regulator.¹⁰³⁵

In 2014, the SARB issued a position paper on the legal and regulatory status of cryptocurrencies in South Africa. It considered the key risks of cryptocurrencies, the status of cryptocurrencies as legal tender and electronic money, and the prospects for regulation within the current regulatory framework.¹⁰³⁶

¹⁰³⁰ Ukwueze 2021 *PEJL* 17.

¹⁰³¹ Magnusson and Sternberg "Cryptocurrency Investments: The Good, The Bad, and The Ugly?" 11.

¹⁰³² He et al "Virtual Currencies and Beyond: Initial Considerations" 24.

¹⁰³³ SARB 2020 <https://www.resbank.co.za/en/home/publications/prudential-authority/public-awareness/sarb-mandate-illegal-deposit-taking>.

¹⁰³⁴ SARB 2020 <https://www.resbank.co.za/en/home/publications/Papers/position-papers>.

¹⁰³⁵ Lawack-Davids 2012 *SA Merc LJ* 84.

¹⁰³⁶ SARB "Position Paper on Virtual Currencies" 1-13.

On the issue of legal tender, the position paper states that on the basis of section 17 of the *SARB Act*,¹⁰³⁷ cryptocurrency is neither legal tender nor a perfect substitute for legal tender in South Africa, as it is not issued by a bank in coins or notes.¹⁰³⁸ Unlike fiat currencies, creditors are not obliged to accept cryptocurrencies as a means of payment.¹⁰³⁹

According to the position paper, the SARB also does not categorise cryptocurrencies as electronic money.¹⁰⁴⁰ This is because cryptocurrencies can only be traded for cash and cannot be redeemed for cash unless they are first converted into fiat currency. They also cannot be deposited into a bank account.¹⁰⁴¹ On the contrary, electronic money has all these characteristics combined, hence the clear distinction between the two.¹⁰⁴²

With regard to the risk of cryptocurrencies, the SARB took the view that cryptocurrencies do not pose a significant risk to financial and price stability or to the national payment system, as they do not exist in the traditional financial system at this time.¹⁰⁴³ Given the low transparency of cryptocurrencies, which prevents the application of anti-money laundering and terrorist financing controls, the SARB warned the public not to participate in cryptocurrencies to avoid losing their money.¹⁰⁴⁴ This is because the system is vulnerable to being used as a tool to facilitate financial crime. Should cryptocurrency providers cease to exist or fail for

¹⁰³⁷ *SARB Act* 90 of 1989.

¹⁰³⁸ In terms of section 17 legal tender is defined as: "A tender by the Bank itself, of a note of the Bank or of an outstanding note of another bank for which the Bank has assumed liability in terms of section 15 (3) (c) of the Currency and Banking Act or in terms of any agreement entered with another bank before or after the commencement of this act; and a tender by the Bank itself, of an undefaced and unmutilated coin which is lawfully in circulation in South Africa, and of current mass."

¹⁰³⁹ SARB "Position Paper on Virtual Currencies" 4-5.

¹⁰⁴⁰ SARB "Position Paper on Electronic Money" 3. Electronic money is defined as: "Monetary value represented by a claim on the issuer. This money is stored electronically and issued on receipt of funds, is generally accepted as a means of payment by persons other than the issuer and is redeemable for physical cash or a deposit into a bank account on demand."

¹⁰⁴¹ SARB "Position Paper on Electronic Money" 3.

¹⁰⁴² Sadhaseevan *The Regulation of Cryptocurrency in the Context of South Africa's Financial Sector* 35.

¹⁰⁴³ SARB "Position Paper on Virtual Currencies" 12.

¹⁰⁴⁴ Sadhaseevan *The Regulation of Cryptocurrency in the Context of South Africa's Financial Sector* 36 – 37.

any reason, cryptocurrency users would have no legal protection in the absence of laws regulating cryptocurrencies.¹⁰⁴⁵

Nevertheless, the SARB reserved the right to reconsider its position on the regulation of cryptocurrencies should there be changes in the cryptocurrency landscape that warrant regulatory intervention in the future.¹⁰⁴⁶

4.2.2 *The South African National Treasury (SANT)*

Similarly, the SANT warns the public about the growing popularity of cryptocurrencies and the associated risks. It advises users to exercise caution and conduct thorough research when engaging in cryptocurrency-related activities.¹⁰⁴⁷ He emphasises that this is necessary given the novelty and technicality of the innovation, which makes it difficult for ordinary users to weigh up the benefits against the risks, leading to vulnerability to fraud or other criminal offences when confronted with the promise of financial returns or incentives.¹⁰⁴⁸

In addition, it is noted that due to the lack of laws regulating cryptocurrencies in South Africa, there is no protection or recourse for cryptocurrency investors under current South African law in the event of financial loss, therefore any participation is at the user's own risk.¹⁰⁴⁹ The lack of such regulation also means that the status of cryptocurrencies is uncertain. The SANT emphasises that cryptocurrencies cannot be classified as legal tender, as no law obliges merchants to accept them as a means of payment.¹⁰⁵⁰ Their popularity and acceptance depends solely on the acceptance of users and/or retailers.¹⁰⁵¹

Further, cryptocurrency also does not fit within the definition of securities in terms of the interpretation section of the *Financial Markets Act*,¹⁰⁵² and although they can be

¹⁰⁴⁵ Nieman 2015 *PELJ* 1991.

¹⁰⁴⁶ SARB "Position Paper on Virtual Currencies" 13.

¹⁰⁴⁷ SANT "User alert: Monitoring of virtual currencies" 1.

¹⁰⁴⁸ SANT "User alert: Monitoring of virtual currencies" 1.

¹⁰⁴⁹ SANT "User alert: Monitoring of virtual currencies" 3.

¹⁰⁵⁰ SANT "User alert: Monitoring of virtual currencies" 2.

¹⁰⁵¹ SANT "User alert: Monitoring of virtual currencies" 2.

¹⁰⁵² Section 1 of the *Financial Markets Act* 19 of 2012.

sold and bought on various platforms, the regulatory standards applicable to securities trading cannot be applied to cryptocurrencies.¹⁰⁵³

4.2.3 The South African Revenue Services (SARS)

In 2018, SARS announced its approach to the tax treatment of cryptocurrencies in a media statement, indicating its intention to apply the existing tax framework to cryptocurrencies.¹⁰⁵⁴ For this to work, SARS relies on taxpayers to take into account gains or losses from cryptocurrencies when calculating their taxable income.¹⁰⁵⁵ Taxpayers are also expected to declare all cryptocurrency-related income within the tax year in which that income was earned or accrued, otherwise the taxpayer would be charged interest and penalties.¹⁰⁵⁶

In the same media release, SARS also enquired about the possibility that cryptocurrencies, an online digital currency that primarily exists in the virtual realm, could serve as an alternative currency that could be used to pay for goods and services in the same way as regular currencies.¹⁰⁵⁷ In South Africa, the definition of currency does not apply to cryptocurrencies, so SARS does not consider cryptocurrencies as currency for either income tax or capital gains tax purposes. Cryptocurrency is instead considered an intangible asset by SARS.¹⁰⁵⁸

While cryptocurrency does not constitute cash, it can be considered when determining a taxpayer's gross income in terms of the *Income Tax Act*,¹⁰⁵⁹ thus

¹⁰⁵³ SANT "User alert: Monitoring of virtual currencies" 2.

¹⁰⁵⁴ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁵⁵ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁵⁶ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁵⁷ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁵⁸ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁵⁹ Section 1(1) of the *Income Tax Act*, 58 of 1962 provides guidance on the determination of a taxpayer's taxable income for any period of assessment, which includes the total amount of worldwide income in cash or otherwise, received by or accrued to a resident person, or the total amount of income in cash or otherwise, received by or accrued to a non-resident person from a source within South Africa.

normal income tax rules apply to cryptocurrency.¹⁰⁶⁰ In cases where a taxpayer has incurred expenses related to cryptocurrencies in earning their income and for trading purposes, they may also claim expenses related to such cryptocurrency accruals or receipts.¹⁰⁶¹

It follows that the base cost of cryptocurrencies can also be adjusted accordingly when the asset is sold to determine the gain or loss.¹⁰⁶² Gains or losses in connection with cryptocurrencies manifest themselves in three scenarios, each of which leads to different tax consequences.¹⁰⁶³ Namely, when new coins are acquired through successful mining and are held in a public ledger as trading stock until the owner sells them or exchanges them for cash.¹⁰⁶⁴ Another scenario is that cryptocurrencies and fiat currencies are traded or exchanged for each other in private transactions or via cryptocurrency exchanges.¹⁰⁶⁵ The final scenario is that goods or services are exchanged for cryptocurrencies in a barter transaction, whereby the normal rules for barter transactions apply.¹⁰⁶⁶

The SARS also stated that a review of the VAT treatment of cryptocurrencies would possibly be issued in the future, pointing out that in the absence of a clear policy in this regard, the SARS would not require vendors supplying cryptocurrencies to be registered as such for VAT purposes.¹⁰⁶⁷

Beyond taxation, however, the broader financial regulators in South Africa do not consider cryptocurrencies to be electronic money, a generally accepted method of payment or a security. Therefore, cryptocurrency is not regulated by either the SARB

¹⁰⁶⁰ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶¹ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶² SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶³ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶⁴ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶⁵ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶⁶ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

¹⁰⁶⁷ SARS 2018 <https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/>.

or the SANT. The SARS regulates it partially and indirectly through the existing tax framework.

Due to the potential risks to consumer protection, system stability and capital efficiency mentioned above, South African financial regulators have warned the public against participating in cryptocurrency transactions, pointing out that cryptocurrencies are vulnerable to being used as a conduit for financial crime due to their pseudo-anonymity.

Notwithstanding this, as mentioned above, the SARB emphasised in its 2014 position paper that it would continue to monitor any changes in the regulatory landscape and change its position accordingly should regulatory intervention be required in the future. Indeed, just under six years later, as discussed in detail later in this chapter, in June 2022, the SARB announced its intention to incorporate cryptocurrencies into the existing South African regulatory framework. So far, there has been no talk of enacting new legislation.

It is worth noting that the aforementioned authorities are struggling with the regulation of cryptocurrencies. One of these challenges is the lack of a universal definition.¹⁰⁶⁸ Cryptocurrencies have similar characteristics to asset classes such as commodities and fiat money.¹⁰⁶⁹ This affects their regulatory treatment, in particular the determination of the appropriate authorities to regulate them.¹⁰⁷⁰ Therefore, as seen above, various authorities classify cryptocurrencies according to their mandate,¹⁰⁷¹ and as will be discussed in the following sections, different South African laws also categorise cryptocurrencies differently.¹⁰⁷²

Another challenge for regulators is the inability to monitor cryptocurrency transactions conducted outside the financial system.¹⁰⁷³ Due to their pseudonymous nature, the authorities cannot identify users.¹⁰⁷⁴ This is exacerbated by the use of

¹⁰⁶⁸ Sotiropoulou and Guegan 2017 *Capital Markets Law Journal* 471.

¹⁰⁶⁹ Ncube and Kabwe 2023 *De Jure Law Journal* 365.

¹⁰⁷⁰ He et al "Virtual Currencies and Beyond: Initial Considerations" 24.

¹⁰⁷¹ He et al "Virtual Currencies and Beyond: Initial Considerations" 24.

¹⁰⁷² He et al "Virtual Currencies and Beyond: Initial Considerations" 24.

¹⁰⁷³ Ncube and Kabwe 2023 *De Jure Law Journal* 365.

¹⁰⁷⁴ Sotiropoulou and Guegan 2017 *CMLJ* 471.

anonymisation tools and services such as the dark web to disguise the source of cryptocurrency transactions, further promoting anonymity.¹⁰⁷⁵

The decentralisation of cryptocurrencies is another feature that makes it difficult for authorities to regulate cryptocurrency networks and transactions.¹⁰⁷⁶ It is impossible for the authorities to enforce the relevant laws and regulations if they do not know the identity of the user or the origin of the transaction, especially in an online environment such as cryptocurrency networks.¹⁰⁷⁷

Furthermore, the lack of a central authority in connection with cryptocurrencies poses a major challenge for their regulation.¹⁰⁷⁸ Due to their decentralised nature, cryptocurrency transactions are cross-border.¹⁰⁷⁹ They are therefore not subject to any authority or jurisdiction, which makes them incompatible with the existing legal framework.¹⁰⁸⁰ Establishing rules within a cryptocurrency network is a challenge as there is no central authority.¹⁰⁸¹

Cryptocurrencies currently operate outside the control of financial market infrastructures, which makes regulation more difficult.¹⁰⁸² The challenge of regulation is exacerbated by numerous participants with different roles, including users, wallet providers, miners, developers, exchanges and trading platforms.¹⁰⁸³ Although they all play an important role in the cryptocurrency sector, regulating the individual parties would be a major burden.¹⁰⁸⁴ A better approach would therefore be to regulate bodies that are recognised as central authorities and are connected to the users of cryptocurrencies in order to regulate transactions.¹⁰⁸⁵

Regulatory authorities also face challenges due to the volatility and unpredictability of cryptocurrencies. The value of cryptocurrencies depends primarily on what a buyer

¹⁰⁷⁵ Erasmus and Bowden 2020 *Obiter* 315.

¹⁰⁷⁶ He et al "Virtual Currencies and Beyond: Initial Considerations" 25.

¹⁰⁷⁷ He et al "Virtual Currencies and Beyond: Initial Considerations" 25.

¹⁰⁷⁸ Ncube and Kabwe 2023 *De Jure Law Journal* 366.

¹⁰⁷⁹ Ncube and Kabwe 2023 *De Jure Law Journal* 366.

¹⁰⁸⁰ Ncube and Kabwe 2023 *De Jure Law Journal* 366.

¹⁰⁸¹ Nabilou 2019 *International Journal of Law and Information Technology* 278.

¹⁰⁸² Nabilou 2019 *IJLIT* 277-278.

¹⁰⁸³ Nabilou 2019 *IJLIT* 278.

¹⁰⁸⁴ Nabilou 2019 *IJLIT* 278.

¹⁰⁸⁵ Nabilou 2019 *IJLIT* 278.

is willing to pay a seller on an open market at a given time.¹⁰⁸⁶ The value of cryptocurrencies is also influenced by the number of units in circulation.¹⁰⁸⁷ For Bitcoin, the total supply is limited to 21 million coins.¹⁰⁸⁸ The closer the supply approaches the upper limit, the more likely it is that prices will rise. As the prices of cryptocurrencies are not government-backed, they are susceptible to external influences, which further increases their volatility and vulnerability.¹⁰⁸⁹ Bitcoin serves as a notable example, as its prices have fluctuated in the past due to positive and negative publicity.¹⁰⁹⁰

The final challenge in the regulation of cryptocurrencies is technical difficulties. The technology behind cryptocurrency networks is constantly evolving to accommodate new use cases.¹⁰⁹¹ This poses a regulatory challenge, as it is impossible for regulators to foresee every possible scenario regarding the function and use of cryptocurrencies in the future.¹⁰⁹² In the case of cryptocurrencies such as Bitcoin, which rely on cryptography technology as a key component of their construction to hide the identity of the actors during transactions and keep the information on the network secure,¹⁰⁹³ regulation is made more difficult by the lack of knowledge of the regulatory authorities in the field of cryptography.¹⁰⁹⁴

The next section, therefore, determines the extent to which the existing financial legislation accommodates cryptocurrency regulation, with specific reference to the *SARB Act*, the *NPSA*, the *Banks Act*, the *FMA*, the *FIAS Act*, the *FICA*, and the *FIA*.¹⁰⁹⁵

¹⁰⁸⁶ Reiff 2022 <https://www.investopedia.com/articles/investing/052014/why-bitcoins-value-so-volatile.asp>.

¹⁰⁸⁷ Reiff 2022 <https://www.investopedia.com/articles/investing/052014/why-bitcoins-value-so-volatile.asp>.

¹⁰⁸⁸ Hayes 2024 <https://www.investopedia.com/tech/what-happens-bitcoin-after-21-million-mined/>.

¹⁰⁸⁹ Ncube and Kabwe 2023 *De Jure Law Journal* 367.

¹⁰⁹⁰ Ncube and Kabwe 2023 *De Jure Law Journal* 367.

¹⁰⁹¹ Ncube and Kabwe 2023 *De Jure Law Journal* 367.

¹⁰⁹² Ncube and Kabwe 2023 *De Jure Law Journal* 367.

¹⁰⁹³ Van der Auwera et al *Financial Risk Management for Cryptocurrencies* 6,105.

¹⁰⁹⁴ Ncube and Kabwe 2023 *De Jure Law Journal* 367.

¹⁰⁹⁵ South Africa has a well-established financial regulatory framework comprising the *South African Reserve Bank Act* 90 of 1989, the *National Payments System Act* 78 of 1998, the *Banks Act* 94 of 1990, the *Financial Markets Act* 19 of 2012, the *Financial Advisory and Intermediary Services Act*

Before looking at these pieces of legislation, this chapter will first take stock of the organisational structure of the South African financial regulatory model. Without a sufficient understanding of the financial regulatory model, it is difficult to draw decisive conclusions regarding the applicability of the laws within the aegis of the model to cryptocurrencies.

4.3 The current financial sector legal and regulatory framework

4.3.1 Setting the scene

The financial services sector is central to holistic global economic wellbeing, as it enables, among other things, internal and external trade, the pooling of funds between various areas of the economy, capital allocation as well as the protection of consumers from financial risk.¹⁰⁹⁶ The financial services sector undeniably keeps an economy going. Its development and stability drives and influences economic growth, which in turn determines the growth path of an economy.¹⁰⁹⁷

Due to the critical importance of the financial sector and its central role in the economy, the financial services sector is vulnerable to a variety of risks,¹⁰⁹⁸ therefore, regulation of the financial sector is essential for most countries worldwide.¹⁰⁹⁹ The last global financial crisis emphasised this,¹¹⁰⁰ with post-crisis evidence showing that the main cause of the collapse was the result of excessive risk-taking, lax financial sector policy and regulation.¹¹⁰¹ To prevent a resurgence of the crisis, the global community has since reprioritised financial stability and actively engaged in reforming its financial regulatory models.¹¹⁰²

This is because financial regulation in many countries has historically been carried out by specialised regulators with different and separate responsibilities for different

37 of 2002, the *Financial Intelligence Centre Act* 38 of 2001, and the *Financial Institutions Act* 80 of 1998.

¹⁰⁹⁶ Qumba 2022 *SALJ* 78.

¹⁰⁹⁷ Prochniak and Wasiak 2017 *Empirica* 296.

¹⁰⁹⁸ Armour et al *Principles of Financial Regulation* 22.

¹⁰⁹⁹ Moloney et al *The Oxford Handbook of Financial Regulation* 68.

¹¹⁰⁰ Schmulow 2015 *JBFLP* 151.

¹¹⁰¹ Qumba 2022 *SALJ* 79.

¹¹⁰² Van Heerden and Van Niekerk 2017 *Law and Financial Markets Review* 154.

sectors.¹¹⁰³ However, the increasing complexity and interconnectedness of financial institutions and their products in recent years has justified reforms to financial regulation models,¹¹⁰⁴ hence the gradual transition to the Twin Peaks model of financial regulation.

The Twin Peaks model was introduced by Australia in 1998 and has later been adopted by the United Kingdom, Belgium, the Netherlands, New Zealand, and South Africa.¹¹⁰⁵ The model introduced separate financial regulators for two broad functions, namely prudential regulation and market behaviour regulation.¹¹⁰⁶

In the context of South Africa, the model is not a pure twin peaks model as envisaged above.¹¹⁰⁷ There is the Prudential Authority (PA), which is administered by the SARB and is responsible for maintaining the safety and soundness of the financial sector,¹¹⁰⁸ and the Financial Sector Conduct Authority (FSCA), which is responsible

¹¹⁰³ European Central Bank 2006 https://www.ecb.europa.eu/pub/pdf/other/report_on_supervisory_structuresen.pdf

¹¹⁰⁴ Godwin, Howse, Ramsay 2017 *SALJ* 665.

¹¹⁰⁵ Schmulow 2015 *JBFLP* 151 - 152. "Before South Africa moved to a twin peaks regulatory model, the South African Reserve Bank (SARB), as the central bank, fulfilled its mandate of banking supervision through its Department of Banking Supervision, which included the Office for Banks, overseen by the Registrar of Banks. In its role as regulator, the SARB had extensive investigative powers and conducted both on-site and off-site monitoring to ensure that banks complied with the requirements of the *Banking Act*. It also had robust enforcement powers that it could use when banks failed to meet licence conditions or prudential standards. This proactive regulatory approach by the SARB played a critical role in maintaining the stability of the banking sector and prevented widespread bank failures. History shows that even relatively minor failures can lead to significant and often unforeseen financial burdens for individuals, governments and society as a whole. In any modern economy, banks serve as conduits for various financial arrangements that must be honoured and renewed over time in order to sustain the economy. The failure of a bank can disrupt the financial affairs of numerous individuals and businesses, limiting their access to funds, their ability to make payments or utilise existing credit facilities." See section 3 of the *Banks Act* 94 of 1990; De Jager 2013 *SA Merc LJ* 506; IMF Country Report No 14/340 South Africa Financial System Stability Assessment 2014 available at <https://www.imf.org/external/pubs/ft/scr/2014/cr14340.pdf>; Van Niekerk *The Role of the Central Bank in the Promotion and Maintenance of Financial Stability-A Comparative Appraisal* 81. See also De Jager 2006 *SA Merc LJ* 159; Bekink and Botha 2009 *SA Merc LJ* 74; Sections 11 and 12 of the *Reserve Bank Act* 89 of 1990; Sections 23-29 of the *Banks Act* 94 of 1990; South African Reserve Bank (SARB) Financial Stability Board "Ending too big to fail: South Africa's intended approach to bank resolution" 10; Havemann 2021 *Economic History of Developing Regions* 313; Hoskin and Woolford "A Primer on Open Bank Resolution" 3.

¹¹⁰⁶ Taylor 2009 *Connecticut Insurance Law Journal* 64.

¹¹⁰⁷ Qumba 2022 *SALJ* 80.

¹¹⁰⁸ Qumba 2022 *SALJ* 80. The Prudential Regulation Authority was established under section 32(1) of the FSRA to ensure the safety and soundness of financial institutions offering financial products and securities and of market infrastructures. Its objectives include protecting financial customers

for the behaviour of financial institutions,¹¹⁰⁹ there is also the SARB, which serves as a peak value.¹¹¹⁰ The SARB is responsible for monitoring monetary policy and financial stability,¹¹¹¹ including ensuring the reliability and security of payment systems.¹¹¹² In addition, the SARB fulfils its responsibility as a central bank to provide sufficient liquidity to financial institutions in financial difficulties by granting them loans.¹¹¹³ Essentially, the South African financial regulatory model comprises three regulators instead of the characteristic two of the Twin Peaks model.¹¹¹⁴

The twin peaks model has aroused great interest among many academics, most of whom argue in favour of the model as an optimal system of financial regulation.¹¹¹⁵

The clear mandates and objectives to which both the supervisory authority and the market conduct regulator are exclusively dedicated under the twin peaks system; the avoidance of the concentration of power in a single authority; the reduced susceptibility to internal conflicts of interest that can arise from having two functions under one roof; the fact that there is no mixing of cultures between regulators and

from the risk of failure of institutions and contributing to financial stability. Details of the objectives of the PA can be found in section 33 of the *FSR Act*.

¹¹⁰⁹ Van Heerden 2018 https://www.up.ac.za/mercantile-law/news/post_2705235-twin-peaks-model-of-financial-regulation-for-south-africa-seeks-to-promote-and-maintain-financial-stability. The Financial Sector Conduct Authority is considered a public entity under the Public Finance Management Act and was established according to section 56(1) of the *FSRA*.

¹¹¹⁰ The *Currency and Banking Act* 31 of 1920 founded the South African Reserve Bank (SARB) as the central bank of South Africa. Today, the SARB operates under the *South African Reserve Bank Act* 90 of 1989, and its role as the central bank is firmly established by section 223 of the Constitution of the Republic of South Africa 1996.

¹¹¹¹ The framework for the South African Reserve Bank's financial stability role is outlined in sections 11-31 of the *FSR Act* 2017. For further reading, see Van Heerden and Van Niekerk 2018 *Journal of International Banking Law and Regulation* 414. As part of its redefined stability mandate, which is explicitly enshrined in a law for the first time, the *FSR Act* requires the Reserve Bank to take all reasonable steps to prevent systemic events and to mitigate their adverse effects quickly when they occur or are imminent, as well as to manage these events and their effects. In addition, it is important to note that under the Twin Peaks model introduced by the *FSR Act*, the Reserve Bank no longer holds the mandate for banking supervision, a role that has now been transferred to the Prudential Authority. Under section 1 of the *FSRA*, a systemic event is defined as: "an event or situation, including those occurring outside the Republic, that is likely to significantly negatively impact the financial system or economic activity within the Republic. This includes events or situations that cause a loss of confidence in the ability of operators or participants in payment systems, settlement systems, financial markets, or financial institutions to continue delivering financial products, services, or market infrastructure services."

¹¹¹² Qumba 2022 *SALJ* 80.

¹¹¹³ De Jager 2006 *SA Merc LJ* 174.

¹¹¹⁴ Matasane 2024 *De Jure Law Journal* 28.

¹¹¹⁵ For example, see Schmulow "Twin Peaks: An analysis of the Australian Architecture" 1-94; Godwin 2017 *Law and Financial Markets Review* 183 – 193; Schmulow 2017 *AJICL* 393 – 417; Van Niekerk and Van Heerden 2017 *THRHR* 636 – 656.

supervisors; the transparency in resolving conflicts when they arise; and the reduced domination of one regulator by another.¹¹¹⁶

Although the policy objectives underlying the transition to the Twin Peaks model appear to be the same in all countries, the legal context and historical factors for such an adoption vary from country to country.

In the case of South Africa, reviews of the regulatory system had been underway since 2007, but in 2009 the scope of these reviews was expanded to take into account the lessons learnt from the global financial crisis.¹¹¹⁷ At the time of the crisis, South Africa was operating under the sectoral regulatory framework in which different financial institutions were supervised by different regulators.¹¹¹⁸

According to this model, South Africa was able to survive the crisis relatively unscathed thanks to its robust financial regulatory framework.¹¹¹⁹ According to an IMF study, the elements of South Africa's financial regulatory framework that helped the country absorb external shocks at the time included prudent macroeconomic policies, a robust monetary policy framework, countercyclical monetary and fiscal policies and limited lending.¹¹²⁰

Despite its proven ability to withstand external shocks, and taking due account of the impact of the crisis on the global markets in general, which have revealed the need for better coordinated and stricter financial regulation in all countries,¹¹²¹ South

¹¹¹⁶ Qumba 2022 *SALJ* 82.

¹¹¹⁷ South African National Treasury "Implementing a twin peaks model of financial regulation in South Africa" 6.

¹¹¹⁸ SANT "Twin Peaks in South Africa: Response and Regulatory Document" 9; Botha and Makina 2011 *International Business & Economics Research Journal* 34.

¹¹¹⁹ SANT "A Safer Financial Sector to Serve South Africa Better" 3.

¹¹²⁰ Ramcharan 2009 <https://www.imf.org/en/News/Articles/2015/09/28/04/53/socar092509a>.

¹¹²¹ South African National Treasury "A Safer Financial Sector to Serve South Africa Better" 4-5. In line with the global financial reform agenda, the Reserve Bank has initiated a regulatory exercise in collaboration with the National Treasury to establish a new legal framework. This framework aims to ensure orderly and transparent resolution of failing institutions with the objective of minimising reliance on government funds for bailouts. This new resolution framework is intended to be a key component of the Reserve Bank's enhanced and clearly defined financial stability mandate. See National Treasury <http://www.treasury.gov.za/documents/national%20budget/2011/A%20safer%20financial%20sector%20to%20serve%20South%20Africa%20better.pdf>. See also South African Reserve Bank "Financial Stability Review: Second Edition 2017" 28. The new resolution regime has been integrated into the FSRA by the *Financial Sector Laws Amendment Act* 23 of 2021, which introduces Chapter 12A, including sections 166A to 166Z.

Africa has decided to overhaul its financial regulatory system by introducing the Twin Peaks model of financial regulation.¹¹²² One of the reasons given by the government for this step was its endeavour to increase transparency, accountability and market integrity.¹¹²³

In addition, the adoption was made to reflect the country's commitment at the G20 meeting in November 2010 to work towards a stronger financial regulatory system to ensure effective supervision of regulated financial institutions and control systemic failures.¹¹²⁴

There is a plethora of motivating factors for South Africa's adoption of the Twin Peaks model, not all of which will be discussed in this study. Suffice it to say that the previous sections have traced the history and reasons for the adoption of the twin peaks model in South Africa to provide a context for the country's financial regulatory model.

Having set out the framework for financial regulation in South Africa, in the following part we discuss the role and impact of cryptocurrencies on prudential regulation and the regulation of market behaviour, referring to the financial legislation that falls under the aegis of the Twin Peaks model described above.¹¹²⁵

¹¹²² The origination of the concept of the Twin Peaks model of financial regulation is well captured in Taylor 1995 *Journal of Financial Regulation and Compliance* 211-221. In the paper, Taylor argues that "sectoral regulation is no longer fit for purpose as financial services providers operate in multiple sectors, making regulation by a single regulator difficult. This approach has only gained traction after the post-mortem reports on the 2008 crisis showed how difficult it is for individual regulators to manage the balancing act between helping large numbers of aggrieved customers and preventing a financial crisis, with most regulators leaning towards the latter to the detriment of consumers. The 2008 crisis also showed how market abuse and misconduct contribute to financial crises, as the subprime mortgage crisis demonstrated." Further, the crisis revealed that "systemic risk can also be carried by insurance firms as witnessed with the near failure of the American International Group (AIG). As a result, several countries have now adopted the Twin Peaks model of financial regulation, including Australia, the pioneer of this model, the Netherlands, New Zealand, the United Kingdom and South Africa. The reason for this is that under the Twin Peak model, both prudential regulation and market conduct regulation are given equal priority to ensure adequate consumer protection and market integrity, whereas previously market conduct issues were routinely considered secondary to prudential issues." Godwin, Howse and Ramsay 2017 *SALJ* 665 - 666.

¹¹²³ Qumba 2022 *SALJ* 84 – 85.

¹¹²⁴ Godwin, Howse and Ramsay 2017 *SALJ* 667.

¹¹²⁵ See footnote 111 above.

4.3.2 FSR Act

The Twin Peak model was introduced by the *Financial Sector Regulation Act (FSR Act)*¹¹²⁶ in South Africa.¹¹²⁷ The Act's objective is to promote financial stability, the safety and soundness of the financial sector, consumer protection, the efficiency and integrity of the financial sector, the prevention of financial crime, the safeguarding of financial inclusion and the creation of confidence in the financial system, including the transformation of the financial sector.¹¹²⁸

If cryptocurrency is to be brought within the ambit of regulation in South Africa, it is prudent that the innovation's eligibility be assessed against the objectives of the *FSR Act* as the backbone of the Twin Peaks model. With the increasing participation in cryptocurrencies, security measures are needed to protect the financial and consumer-related risks to which users are exposed due to the decentralised nature of cryptocurrencies.¹¹²⁹ In addition, cryptocurrency borders on some economic activities such as payments, investments and capital procurement.¹¹³⁰ Therefore, inclusion in the scope of the regulation would fulfil the objectives of the *FSR Act*.

4.3.3 Prudential regulation

The supervision of South African banks is the responsibility of the SARB, as the country's primary monetary authority, and is performed through the Prudential Authority.¹¹³¹ Under the *SARB Act*, the SARB is also entrusted with the oversight of the regulation of the national payment system and is responsible for promoting its soundness, safety and efficiency.¹¹³² To enable this, the NPSA empowers the SARB to designate a body responsible for overseeing and managing entities within the

¹¹²⁶ *FSR Act* 9 of 2017.

¹¹²⁷ Goodspeed 2017 <https://financialregulationjournal.co.za/2017/09/19/twin-peaks/>.

¹¹²⁸ Section 7(1) of the *FSR Act* 9 of 2017.

¹¹²⁹ IFWR "Position Paper on Crypto Assets" 6.

¹¹³⁰ IFWR "Position Paper on Crypto Assets" 11.

¹¹³¹ SARB 2018 <https://www.resbank.co.za/en/home/publications/prudential-authority/public-awareness/sarb-mandate-illegal-deposit-taking>.

¹¹³² PASA 2022 <https://www.pasa.org.za/national-payment-system/legal-regulatory-framework>.

national payment system. Currently, the Payment Association of South Africa holds this designation.¹¹³³

In order to monitor and ensure that financial institutions fulfil the above tasks, the SARB issues banking licences and monitors their activities on an ongoing basis within the framework of the *Banks Act* or other supervisory regulations.¹¹³⁴

The *NPSA* falls outside the purview of the Twin Peaks model, however, because cryptocurrency has similar traits to settlement systems and methods,¹¹³⁵ it is worth determining whether the *NPSA* can be applied to cryptocurrency, and thus by extension be regulated by the SARB.

As noted earlier in this chapter, cryptocurrency is not considered a payment method or payment system in the South African legal framework, nor are its intermediaries considered banking service providers in terms of the relevant banking laws. Therefore, cryptocurrencies cannot currently fall under the SARB's mandate.

4.3.4 Payment systems

The *National Payment System Act* ¹¹³⁶ (*NPS Act*) defines the governance, oversight, functioning and control of payment, clearing, and settlement frameworks in South Africa, along with associated issues. Sufficient regulation of payment systems is essential to ensure their security and efficiency, as they are the gateway to economic activity between consumers and service providers, whose best interests must be promoted at all times.¹¹³⁷ A secure payment system also promotes economic development and financial inclusion.¹¹³⁸

¹¹³³ PASA 2022 <https://www.pasa.org.za/national-payment-system/legal-regulatory-framework>.

¹¹³⁴ This includes the *Mutual Banks Act* 124 of 1993 and the *Cooperative Banks Act* 40 of 2007.

¹¹³⁵ The original purpose of cryptocurrency as envisioned by its originator, Satoshi Nakamoto was for it to serve as an alternative payment system. Nakamoto 2008 <https://nakamotoinstitute.org/static/docs/bitcoin.pdf>.

¹¹³⁶ *National Payment System Act* 78 of 1998.

¹¹³⁷ SARB "A review of the payment system management body model and the role of the Payments Association of South Africa" 2.

¹¹³⁸ SARB "A review of the payment system management body model and the role of the Payments Association of South Africa" 2.

In recent years, the international payments landscape has seen major developments, including information and communication technology, which is likely to impact the delivery of payment services and their oversight through regulation, monitoring and control as it becomes easier for anyone to send payments across the globe in real time by utilising innovations such as cryptocurrencies.¹¹³⁹ Currently, the *NPS Act* does not provide for the possibility of making payments with crypto assets.¹¹⁴⁰ This has been identified as an emerging risk and the SARB has been asked to monitor and respond to this risk by including payments with crypto-assets in the regulatory framework.¹¹⁴¹

If crypto assets were to be formally accepted as a method of payment in South Africa, a number of significant legal and regulatory changes would be required to legitimise their use within the existing financial infrastructure.

Firstly, the *NPS Act* would need to be updated to legally recognise crypto as a valid payment instrument, permitting its integration into the traditional payment framework, something that currently does not exist under South Africa's regulatory structure.¹¹⁴² Simultaneously, the *Exchange Control Regulations* would need amendment to bring cryptocurrency flows under monitoring, such as defining crypto assets as "capital" and allowing certain crypto transactions within discretionary allowances. This is another gap currently recognised in the existing regime.¹¹⁴³

Furthermore, introducing crypto payments would necessitate deploying regulatory tools like the "travel rule" for CASPs, requiring detailed originator and beneficiary information for transfers, in line with FATF standards.¹¹⁴⁴ Crypto service providers would also need to be firmly regulated, that is, they must be licensed under the *FAIS*

¹¹³⁹ SARB "A review of the payment system management body model and the role of the Payments Association of South Africa" 11.

¹¹⁴⁰ IFWR "Position Paper on Crypto Assets" 36.

¹¹⁴¹ SARB "Review of the *National Payment System Act* 78 of 1998" 52.

¹¹⁴² Swart and Laskov 2025 <https://www.werksmans.com/legal-updates-and-opinions/cracking-down-or-catching-up-south-africas-approach-to-crypto-regulation/>.

¹¹⁴³ Stuart-Steer and Roman 2020 <https://www.ensafrica.com/news/detail/2624/south-african-crypto-asset-regulatory-framework>.

¹¹⁴⁴ BusinessTech 2024 <https://businesstech.co.za/news/finance/799956/big-changes-for-anyone-trading-crypto-in-south-africa-especially-over-r5000/>.

Act and registered as accountable institutions under *FICA*, required to conduct due diligence, report suspicious activity, and comply with stringent AML/CFT protocols.¹¹⁴⁵

Lastly, consumer protections and operational clarity would need bolstering. Crypto payments, being peer-to-peer and irreversible, currently lack chargeback mechanisms and fraud protection typical of the National Payment System.¹¹⁴⁶ Measures ensuring transparency, dispute resolution, and integration with conventional payment methods would be essential for safe adoption.¹¹⁴⁷

4.4 Recent developments

In July 2021, the Deputy Governor of the SARB announced that crypto assets would be regulated in a phased approach.¹¹⁴⁸ The Crypto Asset Regulatory (CAR) Working Group (WG) of the Intergovernmental Fintech Working Group (IFWG) has published a position paper on crypto-assets in which it makes a total of twenty-five recommendations, some of which are already being implemented, while others will take longer to materialise.¹¹⁴⁹ The regulation of crypto-assets in line with the recommendations will essentially be achieved by amending three laws in the areas of anti-money laundering, financial advice and brokerage, and exchange control,¹¹⁵⁰ as explained below, as a first legal step to bring cryptocurrencies into the South African legal framework.¹¹⁵¹

The proposed regulations affect all crypto-asset service providers (CASPs) or anyone who securely stores keys or crypto-assets.¹¹⁵² This includes crypto exchanges, ATMs,

¹¹⁴⁵ BusinessTech 2021 <https://businesstech.co.za/news/banking/498227/here-is-the-plan-to-regulate-bitcoin-and-other-crypto-assets-in-south-africa/>.

¹¹⁴⁶ Swart and Laskov 2025 <https://www.werksmans.com/legal-updates-and-opinions/cracking-down-or-catching-up-south-africas-approach-to-crypto-regulation/>.

¹¹⁴⁷ Jafri 2024 <https://cryptoslate.com/south-africa-advances-financial-inclusion-with-crypto-and-digital-payment-reforms/>.

¹¹⁴⁸ LexAfrica Date Unknown <https://lexafrika.com/2022/09/digital-currencies-and-services-gaining-momentum-across-the-continent/>.

¹¹⁴⁹ IFWG CAR WG "Position Paper on Crypto Assets" 3.

¹¹⁵⁰ IFWG CAR WG 2021 https://www.treasury.gov.za/comm_media/press/2021/IFWG_CAR%20WG_Position%20Paper%20on%20Crypto%20Assets_Press%20release_Final.pdf.

¹¹⁵¹ IFWG CAR WG 2021 https://www.treasury.gov.za/comm_media/press/2021/IFWG_CAR%20WG_Position%20Paper%20on%20Crypto%20Assets_Press%20release_Final.pdf.

¹¹⁵² Ncube and Kabwe 2023 *De Jure Law Journal* 363.

any player in the remittance, trading or brokerage sector as well as asset managers with an extended range of crypto assets in their portfolio.¹¹⁵³

The decision to formally incorporate CASPs into the South African regulatory framework comes almost seven years after the SARB's initial regulatory stance on crypto-assets.¹¹⁵⁴ The decision is based on the current regulatory gap in which cryptocurrencies operate, although they have the potential to significantly impact the financial sector, for example due to the growth rate of the crypto-asset market as well as some common characteristics of cryptocurrencies and money that affect economic activities such as settlements, investments and capital raising.¹¹⁵⁵

The regulatory void also enables cryptocurrency players to circumvent regulation leaving the environment exposed to financial and consumer risks.¹¹⁵⁶ As a result, regulators have developed a corresponding need to protect consumers to the greatest extent possible in view of observed heightened interest and or participation in cryptocurrency over the years.¹¹⁵⁷ Another motivating factor has been the

¹¹⁵³ Ncube and Kabwe 2023 *De Jure Law Journal* 363- 364.

¹¹⁵⁴ In 2014, SARB issued a "Position Paper on Virtual Currencies". The paper was a foundation to provide both the public and South African regulators with a basic understanding of cryptocurrencies and the risks associated with their use. The thrust of the paper was simply to recognise the existence of cryptocurrencies, to warn and educate the public and regulators, without necessarily taking an authoritative position on the classification and or treatment of cryptocurrencies in South Africa. The SARB also issued a "Position Paper on Policy Proposals for Crypto-Assets" in 2019, which confirmed some aspects of the 2014 position paper, but also built on existing knowledge about crypto-assets since the publication of the 2014 paper. For example, the term crypto-asset was introduced as a specific class of financial technology. In addition, the paper contained various recommendations on how crypto-asset transactions and the use of crypto-assets in South Africa could comply with the FATF recommendations on AML/CTF. The last position paper on crypto-assets in South Africa was published in 2020. Recommendations were made to create a regulatory framework that can help address the various concerns identified in the 2014 and 2019 consultation papers. In addition, the recommendations were aimed at ensuring compliance with the FATF Recommendations and proposing a regulatory framework for the regulation of CASPs, AML/CTF compliance, licencing and exchange control provisions. Essentially, these three papers summarise and trace South Africa's development in the cryptocurrency space over the years.

¹¹⁵⁵ IFWG CAR WG "Position Paper on Crypto Assets" 4.

¹¹⁵⁶ Mukwehwa *Rethinking the regulation of virtual currency in South Africa* 28-29.

¹¹⁵⁷ IFWG CAR WG "Position Paper on Crypto Assets" 5-6. The South African Financial Sector Conduct Authority (FSCA) has decided to include cryptocurrencies in its licencing system. The expected outcomes of the licencing regime include "improved investor protection, a reduction in market abuse, operational risks and financial crime, as well as the promotion of the South African financial sector by aligning it with global practises. The aim is to increase investor confidence and encourage more informed investment in crypto-assets. The licencing framework will promote a more stable and trustworthy crypto industry in South Africa. By adhering to the established rules, CASPs will be able to expand their operations and contribute to the further growth of the South

increased difficulty for regulators to maintain oversight of cryptocurrency related activities.¹¹⁵⁸ Further, the decision was also informed by relevant revised international standards that brought about amended requirements regarding crypto asset regulation.¹¹⁵⁹

The SARB's decision to regulate CASPs is therefore aimed at fostering innovation within a controlled regulatory environment to enable a balance between the potential benefits of cryptocurrencies and the potential risks to the financial system.¹¹⁶⁰ To this end, the regulation of cryptocurrencies in South Africa is based on six principles.¹¹⁶¹ This means that CASPs will be introduced into the regulatory area in a gradual and structured manner.¹¹⁶² Regulators will also adopt an activity-based approach that allows for a level playing field between incumbents and new entrants where CASPs with correlated or similar activities are subject to the same rules.¹¹⁶³ A corollary to the activity-based approach is the risk-based approach that regulators will take, where rules are applied in proportion and in line with the level of risk posed by the activities of the CASPs concerned.¹¹⁶⁴

Due to the dynamic nature of the cryptocurrency industry, ongoing developments will be continuously monitored in collaboration with the South African financial regulators and developments will in turn feed into their policy positions and relevant regulatory

African crypto market. For CASPs, this means both validation and opportunities for expansion. For consumers, it means more confidence and security. For the market, it means stronger regulation and more investment. The licencing framework provides a great opportunity for the South African crypto industry to develop and progress. Operating under a clearly defined regulatory structure will allow CASPs to gain consumer confidence and attract more mainstream investors. This in turn will stimulate innovation and competition, which will ultimately benefit the entire crypto ecosystem. The FSCA prioritises consumer protection and advises people to only interact with licenced crypto companies. They warn that the lack of a licence should be seen as a major warning sign and recommend that consumers check the specific licences of crypto companies before engaging with them."

¹¹⁵⁸ IFWG CAR WG "Position Paper on Crypto Assets" 16.

¹¹⁵⁹ Webber Wentzel 2020 <https://www.webberwentzel.com/News/Pages/impact-of-the-proposed-fica-amendments-on-crypto-asset-service-providers.aspx>.

¹¹⁶⁰ IFWG CAR WG "Position Paper on Crypto Assets" 3.

¹¹⁶¹ IFWG CAR WG 2021 https://www.treasury.gov.za/comm_media/press/2021/IFWG_CAR%20WG_Position%20Paper%20on%20Crypto%20Assets_Press%20release_Final.pdf.

¹¹⁶² FSCA 2021 <https://www.fsca.co.za/TPNL/fsca%20Newsletter2/3.html>.

¹¹⁶³ FSCA 2021 <https://www.fsca.co.za/TPNL/fsca%20Newsletter2/3.html>.

¹¹⁶⁴ IFWG CAR WG "Position Paper on Crypto Assets" 7.

measures to ensure an appropriate and fit-for-purpose framework at all times.¹¹⁶⁵ Monitoring developments in the crypto-asset market also includes ongoing consultation with all relevant stakeholders and players in the industry.¹¹⁶⁶ Finally, South African regulators will ensure that consumers are educated on digital finance to bridge the information asymmetry between consumers and CASPs who may act unscrupulously and defraud unsuspecting consumers looking to buy crypto-assets.¹¹⁶⁷

Overall, South African financial regulators have accepted crypto-assets as a new market entrant and have agreed to accommodate them within the existing regulatory framework by amending laws where appropriate and sufficient to ensure the regulation of crypto-assets to the extent of current acceptance, use and adoption, with further amendments possible in the future.¹¹⁶⁸

With this in mind, the following section discusses the proposed legislative changes to the regulation of crypto-assets in South Africa.

4.4.1 FICA

The definition of accountable institutions is extended to include CASPs. Once CASPs are treated as accountable institutions, they immediately assume the same AML/CFT compliance obligations that apply to all accountable institutions under *FICA*.¹¹⁶⁹ To ensure that CASPs are properly regulated, they must register with the FIC as accountable institutions and undertake certain obligations to fully comply with *FICA*.¹¹⁷⁰ Some of the specific tasks CASPs are tasked with include performing KYC identification and verification of their clients,¹¹⁷¹ conducting due diligence on

¹¹⁶⁵ IFWG CAR WG "Position Paper on Crypto Assets" 7.

¹¹⁶⁶ IFWG CAR WG 2021
https://www.treasury.gov.za/comm_media/press/2021/IFWG_CAR%20WG_Position%20Paper%20on%20Crypto%20Assets_Press%20release_Final.pdf.

¹¹⁶⁷ IFWR "Position Paper on Crypto Assets" 42.

¹¹⁶⁸ See discussions regarding recent changes in the cryptocurrency licensing landscape in South Africa in below sections evidencing this.

¹¹⁶⁹ IFWR "Position Paper on Crypto Assets" 33.

¹¹⁷⁰ IFWR "Position Paper on Crypto Assets" 34. The FIC will thus assume a supervisory role and will impose administrative penalties against CASPs in the event of non-compliance with the *FICA*.

¹¹⁷¹ IFWR "Position Paper on Crypto Assets" 33. CASPs are expected to conduct client identification and verification using a risk-based approach and subject themselves to AML/CFT risk

customers, maintaining accurate records of customers and transaction data, reporting cash transactions that exceed the set threshold of R25,000.00 or the applicable limit, ongoing monitoring and reporting of suspicious and unusual transactions, reporting control of property with possible links to terrorist activities or organisations.¹¹⁷²

In addition, CASPs are required to establish, document, uphold, and execute a framework for managing risks and ensuring compliance, along with a training program on AML/CFT compliance for their staff.¹¹⁷³ This is because crypto assets are a unique asset class, with a customer base and a level of risk that is different from what the financial sector is normally accustomed to. Therefore, those who deal with CASPs in their day-to-day work should have all the appropriate controls in place and be well versed in the nuances of cryptocurrencies.

4.4.2 FAIS Act

Prior to the 2022 amendments, the *FAIS Act* regulated only conventional financial products such as collective investment scheme interests, securities, and insurance, leaving cryptocurrencies entirely outside the legal framework. This regulatory void permitted advisers and platforms offering cryptocurrency related services to operate without licensing or oversight, exposing consumers to significant risk amid the sector's rapid expansion.¹¹⁷⁴ In response, the FSCA expanded the definition of "financial product" to include crypto assets, enabling licensing and oversight of cryptocurrency transactions and advice.¹¹⁷⁵

assessments in various risk categories to determine their risk appetite and tolerance so that they can apply the appropriate risk standards when identifying and verifying clients based on the level of risk associated with a client. This leads to the implementation of enhanced verification procedures for customers classified as high risk and simplified verification procedures for those classified as low risk.

¹¹⁷² IFWR "Position Paper on Crypto Assets" 33.

¹¹⁷³ IFWR "Position Paper on Crypto Assets" 33.

¹¹⁷⁴ Scott, South and Geel 2022 <https://www.werksmans.com/legal-updates-and-opinions/the-fsca-declares-crypto-assets-as-financial-products/>?

¹¹⁷⁵ Amardien and Gillmer2022 <https://www.cliffedekkerhofmeyr.com/news/publications/2022/Practice/Finance/finance-and-banking-alert-20-october-2022-fsca-declares-crypto-assets-as-a-financial-product-.html?>

Despite this progress, the amendment revealed enduring blind spots as certain entities such as miners and non-custodial wallet providers remained outside FAIS's scope, as the Act continued to hinge on predefined product categories.¹¹⁷⁶ Moreover, overlapping jurisdictional gaps persisted, exchange control and AML/CFT frameworks, specifically under the *FICA* and SARB's Financial Surveillance Department were not fully equipped to manage crypto-specific challenges, and lacked mechanisms to monitor cross-border crypto flows effectively. Additionally, FAIS's static, one-size-fits-all model proved ill-suited for dynamic innovations like stable coins and DeFi protocols, which require flexible, activity-based regulation.

To bridge these gaps, the Conduct of Financial Institutions (COFI) Bill represents a pivotal overhaul.¹¹⁷⁷

The Bill establishes a unified, principle-driven regulatory framework that moves beyond institution-specific rules to focus on the activities performed, ensuring consistent oversight across diverse financial entities.¹¹⁷⁸ It embraces a principles-based, outcomes-focused approach, shifting compliance from rigid rule-following to achieving fair customer outcomes, with regulatory flexibility in design and enforcement.¹¹⁷⁹

The Bill incorporates a risk-based and proportionate structure, enabling regulators to calibrate supervision according to the risks posed by specific activities, while promoting innovation, inclusion, and transformation.¹¹⁸⁰ Central to *COFI* is the legal empowerment of Treating Customers Fairly (TCF) principles, compelling institutions to design products and provide services that meet customers' needs responsibly and transparently.¹¹⁸¹ Additionally, robust governance standards require responsible

¹¹⁷⁶ Tibane and Kern 2022 <https://bowmanslaw.com/insights/south-africa-declaration-of-crypto-assets-as-a-financial-product/?>.

¹¹⁷⁷ Webber Wentzel 2022 <https://www.polity.org.za/article/fsca-declares-crypto-assets-a-financial-product-2022-10-31?>.

¹¹⁷⁸ IFWR "Position Paper on Crypto Assets" 4.

¹¹⁷⁹ Mawson 2025 <https://dailynews.co.za/business/2025-05-20-understanding-the-conduct-of-financial-institutions-bill-a-new-era-for-financial-regulation/>.

¹¹⁸⁰ Geral and Tibane 2019 <https://www.iflr.com/article/2a63733ixysbvckrrhiu1/south-africa-stepping-up-a-gear?>.

¹¹⁸¹ FIA 2023 <https://fia.org.za/2023/12/12/7793/>.

conduct, integrity, conflict management, and accountability from institutional leadership.

Licensing under *COFI* is activity-based, evaluating entities based on the specific functions they perform rather than their institutional type.¹¹⁸² Together, these principles, activity-centric regulation, principle-driven governance, outcomes orientation, risk calibration, enforceable customer fairness, and tailored licensing form a cohesive foundation for regulating crypto assets in a manner that aligns with the evolving financial landscape while safeguarding consumer interests and market integrity.¹¹⁸³

As soon as the Bill comes into force, the *FAIS Act* will be repealed.¹¹⁸⁴

4.4.3 Exchange control regulations

From a foreign exchange control perspective, international financial transactions involving crypto-assets and CASPs are monitored by the SARB's Financial Supervision Division (FinSurv).¹¹⁸⁵ This will be achieved in part through the amendment of the definition of "capital" in the *Exchange Control Regulations*¹¹⁸⁶ to include crypto assets, and further through the amendment of the *Currency Exchanges Manual for Authorised Dealers*¹¹⁸⁷ to delegate to authorised dealers the responsibility for facilitating and reporting transactions related to the cross-border transfer of international currencies for the purchase of offshore crypto-assets, as well as the procurement of crypto tokens abroad for the purpose of maintaining liquidity, through crypto-asset trading platforms (CATPs).¹¹⁸⁸

FinSurv will also extend the regulatory framework for exchange controls that permits licensed CATPs to acquire crypto-tokens abroad to sell locally, subject to certain

¹¹⁸² Webber Wentzel 2025 <https://www.polity.org.za/article/the-cofi-bill-what-financial-institutions-need-to-know-2025-08-05?>.

¹¹⁸³ Mawson 2025 <https://dailynews.co.za/business/2025-05-20-understanding-the-conduct-of-financial-institutions-bill-a-new-era-for-financial-regulation/>.

¹¹⁸⁴ IFWR "Position Paper on Crypto Assets" 4.

¹¹⁸⁵ IFWR "Position Paper on Crypto Assets" 3.

¹¹⁸⁶ *Exchange Control Regulations*, 1961.

¹¹⁸⁷ *Currency Exchanges Manual for Authorised Dealers*, 2016.

¹¹⁸⁸ IFWR "Position Paper on Crypto Assets" 3-4.

restrictions. This will result in an obligation for CATPs to report transactions in crypto-assets, as determined by FinSurv.¹¹⁸⁹

It is therefore clear that continuous review and improvement of the regulatory framework is essential to ensure that it remains strong, compliant with international standards, fit for purpose and adaptable enough to enable the various regulators to fulfil their legislative objectives and responsibilities effectively.¹¹⁹⁰

The above developments are evidence of South Africa's commitment to developing a regulatory framework that is fit for purpose in both the international and domestic context.¹¹⁹¹ More of these developments are discussed below.

In April 2024, the *Financial Sector Conduct Authority* (FSCA) approved 75 establishments for licensing as Crypto Asset Service Providers (CASPs) under the *FAIS Act*.¹¹⁹² This milestone marks a significant advance in South Africa's cryptocurrency regulatory framework and signals the growth of the local crypto market and its evolution towards mainstream investment.¹¹⁹³ By harmonising with

¹¹⁸⁹ IFWR "Position Paper on Crypto Assets" 4.

¹¹⁹⁰ IFWR "Position Paper on Crypto Assets" 4.

¹¹⁹¹ See FSCA 2024 <https://www.fsc.co.za/Regulatory%20Frameworks/Regulatory%20Frameworks%20Documents/2024%20FSCA%203-year%20Regulation%20Plan.pdf>. The FSCA is one such regulator with its Regulatory Plan, a dynamic three-year strategy that is reviewed and revised annually to maintain relevance, effectiveness and alignment with the FSCA's overarching strategic objectives, while also taking account of new risks and developments. The FSCA Regulatory Plan continues to be an important strategic tool that helps the FSCA to systematically conduct legislative reviews and drive the regulatory framework in its area of responsibility in a deliberate and targeted manner. In July 2024, the FSCA published its 3-year Regulatory Plan for 2024 to 2027 to implement the FSCA Regulatory Strategy 2021 to 2025. Various strategic considerations have influenced the development of the Regulatory Plan, including current and emerging risks such as crypto-assets. This risk, including others, necessitates legislative responses, which are integrated into the Regulation Plan as appropriate and necessary.

¹¹⁹² FSCA 2024 <https://www.fsc.co.za/News%20Documents/FSCA%20Press%20Release%20-%20FSCA%20confirms%20list%20of%20currently%20approved%20crypto%20asset%20service%20providers.pdf>. A comprehensive list of these institutions has been uploaded on the FSCA's website for public access. See <https://www.fsc.co.za/Regulatory%20Frameworks/Documents/List%20of%20approved%20crypto%20asset%20service%20providers%20%28CASPs%29.pdf>.

¹¹⁹³ Luno 2024 <https://www.fanews.co.za/article/cryptocurrencies-block-chain/1407/general/1408/crypto-asset-class-about-to-take-off-in-south-africa-as-the-sector-becomes-licensed-and-regulated/39259>. Currently, cryptocurrencies only account for a small portion of the total investment capital managed by fund managers, asset managers and financial advisors in South Africa. However, the approval of several licences for financial services providers by the Financial Sector Conduct Authority (FSCA) could change this dynamic. This topic is

international regulations, South Africa aims to create a safe and transparent environment for cryptocurrency trading, which is essential for boosting consumer confidence and promoting the growth of the industry.¹¹⁹⁴

The licensing process, which began on 1 June 2023, required institutions to submit applications by 30 November 2023.¹¹⁹⁵ In reviewing these applications, the FSCA assessed various factors, including payment infrastructure, customer engagement, data protection and risk management. Due diligence was also conducted in conjunction with the Payments Association of South Africa and the Reserve Bank's Financial Services Department to ensure compliance with regulations.¹¹⁹⁶

As of April 2024, the FSCA had received 374 applications.¹¹⁹⁷ By 30 June 2024, it had approved a further 63, bringing the total number of licenced CASPs to 138.¹¹⁹⁸ Of the

highlighted in a new report by Luno, South Africa's largest crypto investment app and a licenced Financial Service Provider (FSP). Luno's "State of Crypto in Africa" report suggests that "the legitimacy granted by these FSP licences could spark conversations with fund managers, wealth managers and financial advisors, potentially attracting a new wave of investors into the crypto market." Christo de Wit, Luno's country manager for South Africa, noted that "Luno has been consulting with local stakeholders to assess the state of cryptocurrency in Africa." The report also noted that "Bitcoin's market capitalisation has recently surpassed that of silver, which many interpret as a sign of Bitcoin entering the mainstream investment market. "The Luno report "aims to provide insights into the current state of cryptocurrency in the region, its uses, its enormous potential and the challenges it faces." "In March 2024, Luno recorded an increase of more than 43% in the number of first-time crypto buyers in South Africa. During this period, Bitcoin reached some new all-time high, and other cryptocurrencies also rose to multi-year highs." De Wit noted that "studies show that investors are willing to consider crypto investments when they receive recommendations from financial advisors. In the past, many advisors had seen the lack of regulation as a barrier to market entry. With FSCA licensing now in place, this asset class is likely to attract more sophisticated investors seeking professional and responsible advice." According to the report, "Africa is well positioned to lead the decentralised revolution."

"In Africa, it is not only regulatory changes that are driving the adoption of cryptocurrencies, but a fundamental need is also being met. Around 57% of adults on the continent do not have access to a bank account. This makes African countries some of the most underbanked in the world. Although sub-Saharan Africa has relatively low transaction volumes, crypto rates are among the highest in the world, particularly in Nigeria, South Africa and Kenya. In addition, there is a growing trend of using Bitcoin and stablecoins for collateral, suggesting that the baseline adoption of cryptocurrencies in Africa is more in line with the decentralised principles of cryptocurrencies used for actual transactions compared to other regions."

¹¹⁹⁴ Mkhize 2024 <https://www.fanews.co.za/article/cryptocurrencies-block-chain/1407/general/1408/crypto-asset-service-provider-licensing-q-a/39279>.

¹¹⁹⁵ Thorne 2024 <https://businesstech.co.za/news/finance/769032/these-are-the-75-crypto-services-approved-by-the-fsca-in-south-africa/>.

¹¹⁹⁶ Mkhize 2024 <https://www.fanews.co.za/article/cryptocurrencies-block-chain/1407/general/1408/crypto-asset-service-provider-licensing-q-a/39279>.

¹¹⁹⁷ FSCA 2024 <https://www.fsca.co.za/News%20Documents/FSCA%20Press%20Release%20-%20FSCA%20confirms%20list%20of%20currently%20approved%20crypto%20asset%20service%20providers.pdf>.

383 applications received, five were rejected and 80 were withdrawn after discussions.¹¹⁹⁹ Rejected applications generally did not fulfil the requirements of the *FAIS Act*, including poorly prepared business plans and a lack of understanding of crypto assets.¹²⁰⁰ Organisations whose applications have been rejected or withdrawn should reapply if they can fully meet the licencing standards.¹²⁰¹ Unauthorised activities by institutions or individuals will be sanctioned by the regulatory authority, with the exception of those who have submitted a timely application and are currently under investigation.¹²⁰²

The adoption of cryptocurrencies in South Africa is still in its infancy, but upcoming regulations and apparent growing institutional interest could expand access to this asset class for more investors.¹²⁰³ The FSCA's decision to approve licences in 2024 has the potential to change the way institutional and ordinary investors in South Africa view cryptocurrencies, as advisors, financial products and investors are interconnected.¹²⁰⁴ This shift could have a significant impact on the perception of cryptocurrencies within the country.¹²⁰⁵

Change will begin with regulation and the simultaneous maturation of cryptocurrency both in South Africa and globally.¹²⁰⁶ FSP licences for cryptocurrency service providers will enable a clear distinction to be made between reputable companies and fraudulent schemes and strengthen confidence in the market.¹²⁰⁷ The asset class is expected to attract the interest of more sophisticated investors, supported by

¹¹⁹⁸ FSCA 2024 <https://www.fsc.co.za/News%20Documents/FSCA%20Press%20Release%20-%20FSCA%20update%20on%20approved%20Crypto%20Asset%20Service%20Providers%20%2002%20July%202024.pdf>.

¹¹⁹⁹ FSCA 2024 <https://www.fsc.co.za/News%20Documents/FSCA%20Press%20Release%20-%20FSCA%20update%20on%20approved%20Crypto%20Asset%20Service%20Providers%20%2002%20July%202024.pdf>.

¹²⁰⁰ Vermeulen 2024 <https://mybroadband.co.za/news/cryptocurrency/543685-crypto-crackdown-in-south-africa.html>.

¹²⁰¹ Koteli 2024 <https://www.citizen.co.za/business/south-africa-now-has-over-100-licensed-crypto-asset-service-providers/>.

¹²⁰² Stokes 2024 <https://www.fanews.co.za/article/compliance-regulatory/2/general/1082/regulators-to-the-left-regulators-to-the-right/39348>.

¹²⁰³ Luno 2024 "The State of Crypto in Africa" 19.

¹²⁰⁴ Luno 2024 "The State of Crypto in Africa" 20.

¹²⁰⁵ Luno 2024 "The State of Crypto in Africa" 20.

¹²⁰⁶ Luno 2024 "The State of Crypto in Africa" 21.

¹²⁰⁷ Malinga 2024 <https://www.itweb.co.za/article/sa-crypto-service-provider-licensing-to-stimulate-market/O2rQGMAEXVPMd1ea>.

financial services offered in a professional and responsible manner.¹²⁰⁸ This will also help to protect investors from dishonest financial advice, which is in line with the aims of the *FAIS Act*.¹²⁰⁹

Asset managers, fund managers and advisors are currently restricted by the applicable regulations.¹²¹⁰ Now that cryptocurrencies are recognised as a legitimate and regulated asset class, they have the opportunity to explore how these assets might fit into a traditional portfolio.¹²¹¹ The authorisation could encourage both institutional and private investors from different backgrounds to find out more about this new asset class.¹²¹²

4.5 Analytical reflections

As discussed in the preceding chapter, crypto assets have matured into complex forms of digital value that are gaining significant traction in financial markets. Their growing use suggests that they could eventually form part of everyday payment systems in South Africa. However, before this can occur, they must first be acknowledged as legal tender by the South African Reserve Bank "SARB"¹²¹³. At present, SARB maintains that only bank-issued notes and coins qualify as legal tender, excluding crypto assets from this category. Recognition as legal tender can only follow once proper regulation is in place. Regulation is not optional; it is a prerequisite for ensuring the orderly, legitimate, and safe functioning of crypto assets within South Africa's financial system. That said, introducing a comprehensive legal framework is no simple task. Multiple obstacles stand in the way of lawmakers, including consumer risks, environmental considerations, cyber-related crimes, and the absence of clear oversight structures. This section examines these challenges in detail, with a particular focus on their implications for South Africa.

4.5.1 Consumer Protection and Crypto Assets

¹²⁰⁸ Luno 2024 "The State of Crypto in Africa" 21.

¹²⁰⁹ Luno 2024 "The State of Crypto in Africa" 21.

¹²¹⁰ Luno 2024 "The State of Crypto in Africa" 23.

¹²¹¹ Luno 2024 "The State of Crypto in Africa" 23.

¹²¹² Luno 2024 "The State of Crypto in Africa" 23.

¹²¹³ Section 10 of the *South African Reserve Bank Act* 90 of 1989.

The *Consumer Protection Act* recognises the challenges that new technologies and evolving trade practices bring to South African markets. It stresses the need to strengthen consumer rights and create an environment where innovation is balanced with accountability.¹²¹⁴ This objective is particularly relevant to crypto assets, which, although accessible and useful for enabling cross-border transactions and financial inclusion, also expose consumers to unique vulnerabilities.¹²¹⁵ At present, there is no dedicated statute safeguarding crypto users, leaving them exposed to fraud, manipulation, and unfair practices.¹²¹⁶ The Intergovernmental Fintech Working Group "IFWG" has repeatedly highlighted that the absence of consumer protection in this space poses immediate risks, particularly where individuals may fall victim to fraud schemes or money laundering operations. Therefore, consumer protection is one of the most pressing issues that South African regulators must address before crypto assets can operate safely in the local economy.¹²¹⁷

4.5.2 High Volatility of Crypto Assets

Unlike fiat money, which derives stability from government backing and central bank oversight, crypto assets are created through mining and derive value solely from market supply and demand. In South Africa, this means that the worth of a digital token is subject to constant fluctuation, unmoored from any state guarantee. The result is extreme volatility, with values rising and collapsing unpredictably. For consumers, this instability presents significant risks. Holders of crypto assets may be forced to liquidate them into rands or attempt to use them for goods and services.¹²¹⁸ Yet, as crypto is not legal tender, there is no certainty that merchants will accept such payment. Additionally, where tokens are exchanged back into fiat currency, consumers may face steep conversion costs and unfavourable rates.¹²¹⁹ This unpredictability and lack of stability discourage wider adoption, as ordinary South

¹²¹⁴ *Consumer Protection Act* 68 of 2008.

¹²¹⁵ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 12.

¹²¹⁶ IFWG "Position Paper on Crypto Assets" 22.

¹²¹⁷ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 34.

¹²¹⁸ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 36.

¹²¹⁹ Botha et al *The South African Financial Planning Handbook* 523.

Africans may be reluctant to risk their savings on such a precarious store of value. Unless this volatility is addressed through safeguards, crypto assets will remain too hazardous for broad consumer use in South Africa.

4.5.3 *Transparency and Privacy Concerns*

Another major obstacle in protecting South African consumers is the lack of transparency within the crypto industry. The operation of crypto assets involves several intermediaries, such as exchanges and wallet providers, and consumers often have limited insight into how their data is stored, processed, or safeguarded. This raises important questions of accountability. Under the *Protection of Personal Information Act* "POPIA",¹²²⁰ role players in the financial sector are required to process personal information lawfully and to ensure adequate safeguards against breaches. However, many consumers lack assurance that crypto service providers fully comply with these requirements.

A further problem is that many South Africans are unfamiliar with the mining process and its costs. Without readily accessible and transparent information, users may inadvertently incur heavy expenses or enter into unfavourable transactions.¹²²¹ Thus, transparency, both in relation to data protection and in the disclosure of operational risks, is critical for sustaining trust in the crypto environment. Without it, consumer confidence in crypto assets will remain weak.¹²²²

4.5.4 *Dispute Resolution for Consumers*

A further consumer-related challenge arises from the absence of dispute resolution mechanisms.¹²²³ The *Consumer Protection Act*¹²²⁴ underscores the need for effective remedies when consumers are wronged yet in the context of crypto, no such systems exist. Because there is no dedicated regulatory framework, users who suffer loss

¹²²⁰ POPIA 4 OF 2013.

¹²²¹ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 35.

¹²²² Lawack, Mupangavanhu and Olivier 2023 *THRHR* 285 – 292.

¹²²³ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 35.

¹²²⁴ CPA 68 of 2008.

have no formal channel through which to seek redress.¹²²⁵ This leaves them exposed to risks such as void or unenforceable contracts, irreversible transactions, and fraudulent schemes.¹²²⁶ For example, if a consumer mistakenly sends tokens to the wrong address, there is no intermediary or statutory protection to recover those funds.¹²²⁷ In theory, claimants could rely on general principles such as unjustified enrichment, but this would involve lengthy, expensive litigation that is inaccessible to most individuals.¹²²⁸

A practical interim solution would be to expand the jurisdiction of the Ombud for Financial Service Providers, established under section 20 of the *FAIS Act*, to include crypto disputes.¹²²⁹ Since crypto service providers are now recognised as financial service providers under South African law, it follows that the Ombud could reasonably serve as a channel for complaints. This would give users quicker, more affordable access to remedies, thereby filling the current gap until dedicated crypto legislation is enacted. Establishing such a mechanism is crucial if consumers are to engage in the crypto market with confidence that they will not be left without recourse in the event of disputes.

4.5.5 Environmental Implications of Crypto Assets

The mining process is central to the functioning of many crypto assets, as it both generates new tokens and validates blockchain transactions.¹²³⁰ However, this process is far from harmless as it brings with it significant environmental costs.¹²³¹ Mining requires highly specialised computer hardware that consumes vast amounts of electricity.¹²³² In a South African context, where the country already grapples with chronic energy shortages and load-shedding, the additional burden created by crypto mining could worsen an already fragile energy system. Running mining operations

¹²²⁵ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 35.

¹²²⁶ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 35.

¹²²⁷ Spruyt 2018 *Journal of South African Law* 714.

¹²²⁸ Mthombeni *The Legal Nature of Virtual Currencies in South African Law* 20.

¹²²⁹ Lawack, Mupangavanhu and Olivier 2023 *THRHR* 292.

¹²³⁰ Guinan 2023 *Sustainable Development Law and Policy* 4,5.

¹²³¹ Adam 2021 *Pretoria Student Law Review* 379.

¹²³² Guinan 2023 *Sustainable Development Law and Policy* 6.

not only demands electricity for computing power but also requires continuous cooling systems, further increasing energy use.

This level of consumption has wider consequences. Studies have shown that global crypto mining contributes to millions of tons of carbon emissions each year, making it a serious contributor to climate change.¹²³³ For South Africa, which remains heavily reliant on coal-fired power stations, the environmental footprint of mining could be even greater, intensifying air pollution and greenhouse gas emissions.

In addition to high energy use, mining creates electronic waste "e-waste", as obsolete mining equipment must be discarded. This waste often contains toxic substances such as heavy metals, which can leach into soil and water, creating long-term ecological and health hazards.¹²³⁴ South Africa already faces challenges in managing electronic waste effectively, and an unregulated crypto mining industry would only aggravate this issue.

Beyond emissions and waste, other environmental concerns include land use,¹²³⁵ and noise pollution.¹²³⁶ Setting up mining farms requires large tracts of space, potentially disrupting ecosystems and biodiversity.¹²³⁷ The constant noise produced by cooling systems and hardware also poses risks to nearby communities. These cumulative impacts illustrate that crypto mining is not merely a financial or technological concern, but also a pressing environmental one.

If crypto assets continue to grow in popularity, more South Africans may turn to mining as a potential income stream. Without proper regulation and environmental oversight, this could escalate the country's carbon footprint and undermine its commitments to sustainability and green energy. As such, any future legal framework for crypto assets in South Africa must consider not only financial risks but also the ecological consequences of mining.

¹²³³ Guinan 2023 *Sustainable Development Law and Policy* 6.

¹²³⁴ Guinan 2023 *Sustainable Development Law and Policy* 6.

¹²³⁵ Guinan 2023 *Sustainable Development Law and Policy* 6.

¹²³⁶ Guinan 2023 *Sustainable Development Law and Policy* 6.

¹²³⁷ Guinan 2023 *Sustainable Development Law and Policy* 6.

4.5.6 *Crypto Crime and the Associated Risks*

Although crypto assets offer certain advantages, they also carry severe risks, particularly in relation to criminal activity. One of the most attractive features of crypto, its anonymity, is also one of the greatest enablers of crime.¹²³⁸ In South Africa, as elsewhere, criminals exploit the pseudonymous and decentralised nature of these digital assets to commit fraud, theft, and a range of cybercrimes. The lack of regulation heightens this danger, leaving consumers and investors exposed.

The National Cybersecurity Policy Framework "NCPF" defines cybercrime as unlawful acts committed through information and communications technology.¹²³⁹ With crypto assets existing purely in digital form, they are especially vulnerable to such offences. Cybercriminals may target crypto directly, for instance, through phishing schemes designed to trick users into revealing private keys,¹²⁴⁰ or through hacking attacks that seize control of online wallets.¹²⁴¹ Alternatively, crypto can be used as a tool to facilitate other illegal activities, such as purchasing narcotics, weapons, or even human organs on dark web markets.¹²⁴² The pseudonymous nature of blockchain transactions makes crypto appealing for these purposes, as payments can be made quickly and discreetly.

A notable international example was the Silk Road marketplace, where Bitcoin was used extensively for illegal transactions before the site was eventually shut down.¹²⁴³ South Africa, too, has seen crypto implicated in cybercrime, as demonstrated by a number of high-profile scandals.

¹²³⁸ Lee 2020 *New York University Journal of Law and Business* 551-558.

¹²³⁹ State Security Agency "National Cybersecurity Policy Framework of South Africa" 9.

¹²⁴⁰ Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 13.

¹²⁴¹ Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 13.

¹²⁴² Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 13.

¹²⁴³ Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 63.

One of South Africa's most notorious crypto scandals involved Africrypt, an investment platform founded by brothers Ameer and Raees Cajee.¹²⁴⁴ The scheme promised investors extraordinary returns as high as 10% per day.¹²⁴⁵ By early 2021, Africrypt reportedly controlled more than 69,000 Bitcoin, worth over USD3.6 billion at the time. In April 2021, the Cajee brothers announced that the platform had been hacked and urged investors not to contact the authorities. Investigations later revealed that funds had been siphoned from clients' accounts and moved through pooled wallets, making them virtually untraceable. The brothers disappeared soon after, along with the money.¹²⁴⁶

The Financial Sector Conduct Authority "FSCA" stated it could not intervene, since crypto assets were not formally regulated in South Africa at the time.¹²⁴⁷ This left investors with no legal protection, highlighting the urgent need for a regulatory framework that ensures recourse in cases of fraud or misappropriation.

Another infamous South African case was Mirror Trading International "MTI", which lured over 260,000 members worldwide and reportedly controlled more than 23,000 Bitcoin, valued at around USD885 million.¹²⁴⁸ MTI promised lucrative returns using a supposed automated trading bot. In reality, it operated as a Ponzi scheme.¹²⁴⁹ When the company collapsed, its founder and CEO, Johann Steynberg, fled the country before being arrested in Brazil.

The South African High Court declared MTI an unlawful pyramid scheme, while courts in the United States imposed massive restitution and civil penalties against Steynberg. In total, he was ordered to pay the equivalent of R64 billion to victims.¹²⁵⁰ The MTI debacle demonstrated the scale of damage that unregulated crypto schemes can inflict, both locally and internationally.

¹²⁴⁴ Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 61.

¹²⁴⁵ Geldenhuys 2022 *Sabinet African Journals* 17.

¹²⁴⁶ Geldenhuys 2022 *Sabinet African Journals* 17.

¹²⁴⁷ Geldenhuys 2022 *Sabinet African Journals* 17.

¹²⁴⁸ Geldenhuys 2022 *Sabinet African Journals* 16.

¹²⁴⁹ Bester N.O and Others v Mirrir Trading International (Pty) Ltd (In liquidation) t/a MTI 15426/2021.

¹²⁵⁰ Cronje 2023 <https://www.news24.com/business/companies/court-rules-sa-crypto-platform-mirror-trading-international-was-unlawful-ponzi-scheme-20230428>.

These case studies demonstrate that South Africa is far from immune to crypto-related crime. On the contrary, its lack of regulation has made it a fertile environment for scams and fraud. The anonymity and cross-border nature of crypto transactions allow criminals to operate with relative impunity, often leaving victims without recourse.¹²⁵¹ Unless South Africa enacts robust oversight mechanisms, consumers will remain exposed to significant risks.

4.5.7 Money Laundering and Terrorist Financing

The pseudonymous and decentralised qualities of crypto assets, while appealing to legitimate users, also make them highly attractive to criminals seeking to disguise the origins of illicit funds or to move money covertly. As early as 2014, the South African Reserve Bank "SARB" cautioned that crypto could be misused for money laundering and terrorist financing.¹²⁵² Nearly a decade later, those risks have not diminished, in fact, they have intensified due to the absence of comprehensive oversight in South Africa.

Under the *Prevention of Organised Crime Act* 121 of 1998, money laundering is defined as any activity that conceals or disguises the nature, source, location, or movement of property acquired through unlawful means.¹²⁵³ Typically, laundering occurs in three stages;¹²⁵⁴ placement which introduces illicit funds into the financial system, layering which moves money between different accounts or asset classes to obscure its origin and integration which reintroduces the funds into the economy under the appearance of legitimacy.¹²⁵⁵

Crypto assets are most often used during the layering phase, where "dirty" cash is converted into tokens that can be moved quickly, across borders, and without the need for intermediaries.¹²⁵⁶ The decentralised nature of blockchain transactions

¹²⁵¹ Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 10.

¹²⁵² SARB "Position Paper on Virtual Currencies" 5.

¹²⁵³ Section 4 of the *Prevention of Organised Crime Act* 121 of 1998.

¹²⁵⁴ Adam 2021 *Pretoria Student Law Review* 379.

¹²⁵⁵ Adam 2021 *Pretoria Student Law Review* 379.

¹²⁵⁶ Adam 2021 *Pretoria Student Law Review* 379.

means they are difficult to trace, and criminals exploit this feature to launder vast sums.¹²⁵⁷

Globally, authorities have uncovered large-scale laundering through crypto. A prominent case was Liberty Reserve, a virtual currency exchange that facilitated anonymous transfers. Its founder was convicted in the United States for operating what prosecutors described as a digital money-laundering hub.¹²⁵⁸ The case demonstrated how easily illicit funds can be cleaned by cycling them through crypto platforms.

For South Africa, the consequences of such practices are severe. Money laundering erodes financial stability, discourages foreign investment, and diverts resources away from productive use. The scale of global laundering is vast and in 2021 alone, it was estimated that criminals laundered over USD8.6 billion in crypto, representing a 30 per cent increase from the previous year.¹²⁵⁹ Without effective safeguards, South Africa's financial system risks being exploited as part of these global laundering networks.

Just as crypto is useful for laundering money, it also facilitates terrorist financing. Groups are increasingly turning to digital assets because they allow for fast, inexpensive, and relatively untraceable transfers across borders.¹²⁶⁰ In South Africa, this is a matter of particular concern given the Financial Action Task Force "FATF" has placed the country under scrutiny for deficiencies in anti-money laundering and counter-terrorist financing measures.¹²⁶¹

Internationally, terrorist organisations have explicitly endorsed the use of crypto.¹²⁶² For example, ISIS once circulated a blog post describing Bitcoin as an ideal tool for

¹²⁵⁷ Adam 2021 *Pretoria Student Law Review* 279.

¹²⁵⁸ U.S Department of Justice 2026 <https://www.justice.gov/archives/opa/pr/founder-liberty-reserve-pleads-guilty-laundering-more-250-million-through-his-digital>.

¹²⁵⁹ Geldenhuys 2022 *Sabinet African Journals* 24.

¹²⁶⁰ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 28.

¹²⁶¹ FATF "Targeted Update on implementation of the FATF Standards on Virtual Asset Service Providers" 2.

¹²⁶² Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 28.

funding operations, including the purchase of weapons and narcotics. By tapping into global networks of sympathisers, terrorist groups can build donor bases outside traditional banking systems, making detection much harder.¹²⁶³

Both the FATF and the IFWG have emphasised the urgent need for South Africa to integrate crypto assets into its existing anti-money laundering and counter-terrorist financing framework. Recent steps have been taken include Crypto Asset Service Providers (CASPs) being designated as "accountable institutions" under the *Financial Intelligence Centre Act* (FICA), obligating them to implement customer due diligence, maintain records, and report suspicious transactions.¹²⁶⁴ However, compliance and enforcement remain uneven, and regulatory gaps persist.

Crypto's susceptibility to laundering and terrorist financing demonstrates that it is not only a financial innovation but also a potential national security risk.¹²⁶⁵ Without robust oversight, South Africa risks becoming a haven for illicit flows of money, undermining both domestic stability and international financial integrity. Addressing these vulnerabilities through a strong AML/CFT framework is therefore a critical element of any future regulatory system for crypto assets.

4.5.8 Lack of Central Regulation

Perhaps the most significant barrier to effective oversight of crypto assets in South Africa is the absence of a central regulatory authority. By design, crypto assets are decentralised, operating without an issuing institution or supervisory body.¹²⁶⁶ This means that unlike conventional financial products, there is no central administrator ensuring transparency, stability, or accountability.

In South Africa, this decentralisation translates into a fragmented legal landscape. Different agencies such as the South African Reserve Bank "SARB", the Financial Sector Conduct Authority "FSCA", the Financial Intelligence Centre "FIC", and the

¹²⁶³ Mothokoa *Regulating Cryptocurrencies in South Africa: The need for effective legal framework to mitigate the associated risks* 28.

¹²⁶⁴ Section 1 of the FICA

¹²⁶⁵ Joynt *The South African Legal Framework's Response to the Prevalence of Cybercrime in Electronic Commerce* 12.

¹²⁶⁶ FATF Virtual Currencies Key Definitions and Potential AML/CFT Risks" 5.

South African Revenue Service "SARS" each play a role, but no single regulator has overarching authority over crypto. As a result, the regulatory approach has been piecemeal, with position papers and notices addressing specific risks rather than a unified legal framework.

This lack of central oversight leaves critical gaps. Consumers are unprotected, disputes lack clear remedies, and there is no consistent framework for addressing crimes such as fraud or scams. The Africrypt and MTI scandals highlighted the consequences of this regulatory vacuum; the FSCA openly admitted it had no jurisdiction to intervene, leaving investors exposed. Without a centralised framework, South Africa is ill-equipped to deal with the risks that crypto poses to financial stability, consumer rights, and national security.

The decentralised nature of crypto cannot be changed, but South Africa can and must establish a centralised regulatory framework that brings clarity to classification, enforcement, and oversight. Without it, the market will remain vulnerable to abuse and regulatory arbitrage.¹²⁶⁷

4.6 Conclusion

South Africa's phased regulatory strategy marks an important step in redefining the treatment of cryptocurrencies. Measures such as the classification of crypto assets as financial products under the *FAIS Act* and the licensing of service providers demonstrate progress, but they remain only a foundation. The current framework is still incomplete and insufficient to address the full range of risks, leaving gaps that threaten both investor confidence and the stability of the financial system.

Effective regulation will require more than piecemeal amendments. It must combine legal certainty, technological neutrality, inter-agency coordination, and inclusivity, while remaining adaptable to rapid innovation. Although South Africa's cautious approach has the advantage of flexibility, its limitations become evident when compared with international developments.

¹²⁶⁷ Gelpert 2014 *Jotwell* 1.

The next chapter therefore turns to selected foreign jurisdictions, examining their regulatory responses to cryptocurrencies. This comparative analysis will assess where South Africa's strategy converges or diverges from global practice, and identify lessons for building a more coherent, future-ready framework.

CHAPTER 5: THE LEGAL AND REGULATORY RESPONSES TO CRYPTOCURRENCY: CANADA, JAPAN AND THE UNITED STATES

5.1 Introduction

As discussed in Chapter 3, the global rise of cryptocurrencies has compelled national regulators to confront unprecedented legal and policy challenges. While some jurisdictions have adopted permissive or laissez-faire approaches, others have implemented structured and proactive legal responses aimed at balancing innovation with risk mitigation. Among the most instructive are the regulatory frameworks developed by Canada, Japan, and the United States, each reflecting distinct legal traditions, market conditions, and institutional priorities. These jurisdictions offer valuable comparative insights into how developed economies have sought to regulate crypto-assets in areas such as licensing, taxation, anti-money laundering, consumer protection, and the supervision of decentralised finance and stablecoins. This chapter critically examines their legal and regulatory strategies, highlighting both common trends and divergent approaches. Understanding these approaches can help South Africa craft laws that are both effective and appropriate for its local context.

5.2 Canada

For the purposes of the *Currency Act*, cryptocurrency is not legal tender in Canada as it is not issued by the Bank of Canada or any other government agency.¹²⁶⁸ Despite this, Canada, through its national tax authority, the Canada Revenue Agency (CRA), was one of the first countries to take a stance on cryptocurrencies,¹²⁶⁹ with various Canadian government agencies, both federal and provincial, that have varying degrees of receptivity and innovation to regulating cryptocurrencies.¹²⁷⁰ The below discussion is guided by the Bill C-31¹²⁷¹ which was amended specifically to cater for

¹²⁶⁸ In terms of section 7(1) of the *Currency Act* 1985, legal tender is defined as bank notes issued by the Bank of Canada under the *Bank of Canada Act* 1985, and coins issued under the *Royal Canadian Mint Act* 1985.

¹²⁶⁹ Hoegner and Friedman *The Law of Bitcoin* 1.

¹²⁷⁰ Chatillon, Grewal, and Levesque 2023 <https://www.globallegalinsights.com/practice-areas/block-chain-laws-and-regulations/canada>.

¹²⁷¹ Van Eyk 2021 <https://www.coindesk.com/markets/2014/06/24/what-canadas-new-regulations-mean-for-bitcoin-businesses/>. The Bill C-31 is Canada's omnibus budget implementation Bill passed in 2014. It included the amendment to the *Proceeds of Crime (Money Laundering) and*

cryptocurrencies.¹²⁷² The discussion also addresses the possible application of existing laws in the financial sector to cryptocurrencies.

5.2.1 Anti-Money laundering and combating terrorism financing

At federal level, the *Proceeds of Crime (Money Laundering) and Terrorist Financing Act* (the *PCMLTFA*)¹²⁷³ was amended in 2014 by Bill C-31, which introduced a comprehensive framework for the regulation of virtual currencies to curb criminal activities related to virtual currencies such as money laundering and terrorist financing.¹²⁷⁴

In terms of the amended *PCMLTFA*, dealers in virtual currency must be registered as money services businesses (MSBs) in Canada or in the case of dealers without a place of business in Canada but who provide virtual currency services to persons or entities in Canada, register as foreign money services businesses (FMSBs) with the Financial Transactions and Reports Analysis Centre (FinTRAC).¹²⁷⁵ Some of FinTRAC's functions are the same as those of CASPs in South Africa. Once registered, both MSBs and FMSBs are subject to the customer due diligence and related verification procedures, suspicious transaction reporting, terrorist asset reporting, transaction threshold reporting and record keeping requirements that apply under the *PCMLTFA*,¹²⁷⁶ and thus abolish the pseudo-anonymity of cryptocurrencies. These requirements will make it more difficult for the perpetrators of money laundering through cryptocurrencies to successfully carry out their crimes, as their identity will no longer remain hidden and can be traced.

Terrorist Financing Act of 2000 which seeks to improve the country's AML/CFT policies and measures, by introducing a wide range of reporting requirements for the cryptocurrency ecosystem.

¹²⁷² Virtual Currency Today "Regulation of Virtual Currencies: A Global Overview" 22.

¹²⁷³ *Proceeds of Crime (Money Laundering) and Terrorist Financing Act* of 2000.

¹²⁷⁴ Virtual Currency Today "Regulation of Virtual Currencies: A Global Overview" 22.

¹²⁷⁵ Chatillon, Grewal, and Levesque 2023 <https://www.globallegalinsights.com/practice-areas/block-chain-laws-and-regulations/canada>.

¹²⁷⁶ Chatillon, Grewal, and Levesque 2023 <https://www.globallegalinsights.com/practice-areas/block-chain-laws-and-regulations/canada>.

5.2.1 Tax laws

The previous chapters of this paper have established that cryptocurrencies have the potential to be used for the purposes of tax evasion. Due to the absence of reporting obligations, it becomes challenging for tax authorities to track cryptocurrency transactions if they are not reported by virtual currency traders, thereby shrinking countries' tax bases. Recognising this, Canada, through its tax authority, the Canada Revenue Agency (CRA), has attempted to regulate the taxation of cryptocurrencies in relation to crypto mining, exchanges and securities.¹²⁷⁷

The CRA identifies virtual currencies as an asset that can be traded and exchanged and is therefore subject to the *Income Tax Act*.¹²⁷⁸ Depending on the circumstances, income from the sale of cryptocurrencies can be categorised as either business income or capital gains.¹²⁷⁹ Therefore, virtual currency traders are required to report all business income or losses and all capital gains or losses.¹²⁸⁰

The CRA has issued guidance on how various cryptocurrency transactions should be treated for income tax purposes.¹²⁸¹ This is because the income from a cryptocurrency transaction that results in income has different implications for income tax than a transaction that results in capital.¹²⁸²

Some of the cryptocurrency transactions covered by the CRA guidance include cases where merchants accept digital currencies as a form of payment for products or services, further requiring that such values be included as part of the income of the

¹²⁷⁷ Chatillon, Grewal, and Levesque 2023 <https://www.globallegalinsights.com/practice-areas/block-chain-laws-and-regulations/canada>.

¹²⁷⁸ Chatillon, Grewal, and Levesque 2023 <https://www.globallegalinsights.com/practice-areas/block-chain-laws-and-regulations/canada>; Canada *Income Tax Act* of 1985.

¹²⁷⁹ CRA 2013 http://www.craarc.gc.ca/nwsrm/fctshts/2013/m11/fs131105-eng.html?utm_source=mediaroom&utm_medium=email.

¹²⁸⁰ Government of Canada 2021 <https://www.canada.ca/en/financial-consumer-agency/services/payment/digital-currency.html>.

¹²⁸¹ Government of Canada 2021 <https://www.canada.ca/en/financial-consumer-agency/services/payment/digital-currency.html>.

¹²⁸² CRA 2013 http://www.craarc.gc.ca/nwsrm/fctshts/2013/m11/fs131105-eng.html?utm_source=mediaroom&utm_medium=email.

relevant merchants for tax purposes.¹²⁸³ The purchase and sale of digital currencies themselves is also taxable under the *Income Tax Act*.¹²⁸⁴

The CRA also considers virtual currency mining to be a business activity, as miners receive digital coins in exchange for validating transactions, which is a source of income subject to taxation at the time the coins are acquired.¹²⁸⁵

5.2.2 Consumer protection

Due to the significant risks that cryptocurrencies pose to consumer protection, several federal agencies such as the Financial Consumer Agency of Canada (FCAC), the Office of the Superintendent of Financial Institutions (OSFI) and the Canada Deposit Insurance Corporation (CDIC) are proactively monitoring how federally regulated companies manage cryptocurrency risks.¹²⁸⁶ These entities are expected to fully comply with existing financial sector laws and the guidelines issued by the above-mentioned supervisory authorities in their activities related to cryptocurrencies.¹²⁸⁷

As cryptocurrencies require careful oversight due to their existence within and outside the traditional financial sector, the FCAC favours an approach where cryptocurrencies are subject to the same standard of regulation as traditional financial services providers, as long as cryptocurrency traders perform an equivalent economic function to traditional financial services providers, according to the concept of equivalent operations, risk, and oversight.¹²⁸⁸ This approach follows the approach

¹²⁸³ Virtual Currency Today "Regulation of Virtual Currencies: A Global Overview" 24.

¹²⁸⁴ CRA 2013 http://www.craarc.gc.ca/nwsrm/fctshts/2013/m11/fs131105-eng.html?utm_source=mediaroom&utm_medium=eml.

¹²⁸⁵ Chatillon, Grewal, and Levesque 2023 <https://www.globallegalinsights.com/practice-areas/block-chain-laws-and-regulations/canada>.

¹²⁸⁶ Financial Consumer Agency of Canada <https://www.canada.ca/en/financial-consumeragency/news/2022/11/statement-to-entities-engaging-in-crypto-asset-activities-or-crypto-related-services0.html>.

¹²⁸⁷ Financial Consumer Agency of Canada <https://www.canada.ca/en/financial-consumeragency/news/2022/11/statement-to-entities-engaging-in-crypto-asset-activities-or-crypto-related-services0.html>.

¹²⁸⁸ Financial Consumer Agency of Canada <https://www.canada.ca/en/financial-consumeragency/news/2022/11/statement-to-entities-engaging-in-crypto-asset-activities-or-crypto-related-services0.html>.

proposed by the FSB to create a comprehensive regulatory framework for the international regulation of cryptocurrency activities.¹²⁸⁹

Canada's model has proved successful in promoting accountability and reducing fraud, while still allowing crypto firms to operate openly.

5.3 Japan

5.3.1 Cryptocurrency regulatory authorities

Japan is one of the pioneers of the blockchain industry and probably the most crypto-friendly country. Its progressive cryptocurrency policy is the result of co-operation between its crypto-asset regulators – the Financial Services Agency of Japan (JFSA), the Japan Virtual and Crypto Assets Exchange Association (JVCEA) and the Japan Security Token Association (JSTOA).¹²⁹⁰

The JFSA was established in 1998 as Japan's main financial regulator to safeguard the reliability and soundness of the financial industry.¹²⁹¹ The Agency supervises the banking, insurance, securities and stock exchange sectors. It also monitors and oversees issues prevalent in these institutions, such as anti-money laundering, anti-terrorist financing and cyber security, and ensures that these measures comply with both local and international AML/CFT guidelines.¹²⁹² By extension, through its Strategy Development and Management Bureau, the JFSA oversees FinTech firms like crypto asset exchange service providers and fund transfer service providers.¹²⁹³ Both domestic and foreign crypto exchanges must register for licences with the JFSA.¹²⁹⁴ As of 31 May 2023, there are 30 registered providers of crypto-asset exchanges in Japan.¹²⁹⁵

¹²⁸⁹ FSB 2022 <https://www.fsb.org/2022/10/fsb-proposes-framework-for-the-international-regulation-of-crypto-asset-activities/>.

¹²⁹⁰ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

¹²⁹¹ FSA 2023 https://www.fsa.go.jp/en/about/pamphlet_e.pdf.

¹²⁹² FSA 2023 https://www.fsa.go.jp/en/about/pamphlet_e.pdf.

¹²⁹³ FSA 2023 https://www.fsa.go.jp/en/about/pamphlet_e.pdf.

¹²⁹⁴ Chainalysis 2020 <https://blog.chainalysis.com/reports/japan-cryptocurrency-regulation-updates-2020/>.

¹²⁹⁵ FSA 2023 https://www.fsa.go.jp/en/regulated/licensed/en_kasoutuka.pdf.

In the interest of protecting crypto investors and confidence in the crypto market, as well as promoting cooperation between the regulator and exchanges, the JFSA recognised the JVCEA as a self-regulatory organisation (SRO) under the *Payment Services Act* (PSA) in 2018, following a catastrophic exchange hack in January of the same year.¹²⁹⁶ The JCVEA is responsible for enforcing compliance with crypto laws for registered and unregistered Virtual Asset Service Providers (VASPs).¹²⁹⁷ The JFSA has also recognised the Japan Security Token Offering Association (JSTOA) as a self-regulatory organisation (SRO). This association focuses on crowdfunding projects and ensures compliance with the relevant regulations for the offering of securities.¹²⁹⁸

Foreign regulators such as the Financial Task Force (FATF) and the Asia-Pacific Group on Money Laundering (APG), of which Japan is a member,¹²⁹⁹ also have an influence on how the country responds to the regulation of crypto-assets by exerting political pressure to ensure the implementation of their guidelines and recommendations regarding the regulation of AML/CFT, including virtual assets.¹³⁰⁰ The JFSA calls on financial institutions to take various measures to ensure that they are FATF-compliant.¹³⁰¹

Following the discussion of Japanese crypto-asset regulators, the next section provides a timeline of Japanese crypto-regulation.

¹²⁹⁶ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

¹²⁹⁷ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

¹²⁹⁸ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

¹²⁹⁹ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>. FATF is the global intergovernmental AML/CFT regulatory body against money laundering and terrorism financing appointed by the G20 countries to enforce implementation of an effective global AML/CFT policy; APG 2023 <https://apgml.org/about-us/page.aspx?p=91ce25ec-db8a-424c-9018-8bd1f6869162>. The APG is a FATF style regional intergovernmental organization mandated to implement the international standards on anti-money laundering, counter terrorism financing and proliferation financing related to weapons of mass destruction.

¹³⁰⁰ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

¹³⁰¹ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

5.3.2 History of Japan's cryptocurrency regulation

Cryptocurrencies have been recognised as legal tender since April 2017 and are widely accepted as an alternative means of payment in Japan.¹³⁰² In the run-up to this recognition, a major cryptocurrency exchange called Mt Gox in Tokyo was hacked in 2011 and 2014, resulting in the loss of hundreds of thousands of bitcoins.¹³⁰³ With Mt Gox accounting for an estimated 70% of global Bitcoin transactions, the loss destabilised the Bitcoin market. While some of the value of the lost bitcoins was later recovered, most of it was not, forcing the exchange into bankruptcy.¹³⁰⁴

The bankruptcy of Mt Gox has highlighted the inadequate security measures and the dangers of a lack of regulation of cryptocurrency exchanges for both consumers and exchanges.¹³⁰⁵ The need to stop the hacks to protect crypto players and instil confidence in the cryptocurrency market was therefore obvious.¹³⁰⁶ As a result, the JFSA investigated the failure and found that the internal administrative and operational systems of the cryptocurrency exchanges were inadequate.¹³⁰⁷ The results of this study have reinforced the already existing fear of the volatility of virtual currencies, as they are not backed by a value and their market value is therefore speculative.¹³⁰⁸

In 2017, the JFSA had already warned the public about the volatility of virtual currencies and warned them of potential risks associated with virtual currencies.¹³⁰⁹ The Agency has also pointed out that all activities related to virtual currencies, which can be equated with investments in fiat currency, could be governed by the

¹³⁰² Coinpedia 2022 <https://coinpedia.org/cryptocurrency-regulation/crypto-regulations-in-japan/>.

¹³⁰³ Frakenfield 2023 <https://www.investopedia.com/terms/m/mt-gox.asp>.

¹³⁰⁴ Frakenfield 2023 <https://www.investopedia.com/terms/m/mt-gox.asp>.

¹³⁰⁵ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-regulation-history-2014-2020/>.

¹³⁰⁶ Sygna 2023 <https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/>.

¹³⁰⁷ Omagari and Sako 2019 <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

¹³⁰⁸ Omagari and Sako 2019 <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

¹³⁰⁹ Omagari and Sako 2019 <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

obligations of existing financial sector regulations,¹³¹⁰ namely, the *Payment Services Act* (the PSA) and the *Financial Instruments and Exchange Act* (the FIEA).¹³¹¹ However, due to the significant increase in the types of virtual currency transactions and the growing popularity, an update of the virtual currency framework in Japan was imminent to provide clarity and guidance on how to better handle virtual currencies.¹³¹²

To this end, the JFSA set up a study group in 2018 to address issues relating to the exchange of virtual currencies in Japan,¹³¹³ such as problems related to the theft of virtual currencies from customers, the failure of service providers to develop adequate internal controls to respond to rapid business growth, the price volatility of virtual currencies and the emergence of new types of virtual currency transactions.¹³¹⁴ Following the consultations, the study group published a report with recommendations for amending the regulations for crypto assets.

Among other things, it aims to ensure that the risks of virtual currency outflows are addressed, that proper business procedures are enforced, that non-compliant virtual currencies are restricted, that registration requirements are imposed and that the term crypto-assets rather than virtual currencies is introduced in line with international trends.¹³¹⁵

Based on the recommendations, the PSA and FIEA were amended in 2019 to better cover the regulation of crypto-assets in Japan and to securely integrate crypto-assets into the broader traditional financial system.¹³¹⁶ The amendment came into force in May 2020 and brings with it significant and fundamental changes.¹³¹⁷

¹³¹⁰ Omagari and Sako 2019 <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

¹³¹¹ *Payment Services Act* 59 of 2009; *Financial Instruments and Exchange Act* 25 of 1948.

¹³¹² Omagari and Sako 2019 <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

¹³¹³ FSA 2019 <https://www.fsa.go.jp/en/refer/councils/virtual-currency/20181228.html>.

¹³¹⁴ FSA 2018 <https://www.fsa.go.jp/en/refer/councils/virtual-currency/20181221-2.pdf>.

¹³¹⁵ FSA 2018 <https://www.fsa.go.jp/en/refer/councils/virtual-currency/20181221-2.pdf>.

¹³¹⁶ Coinfirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

¹³¹⁷ Coinfirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

5.3.2.1 The Payment Services Act (PSA)

As part of the amendment, the term "virtual currency", which refers to cryptocurrencies, is renamed "crypto-assets" in order to avoid misidentification with government-issued¹³¹⁸ currencies and to align with current international terminology.¹³¹⁹ Providers therefore have a duty to inform their customers about the difference between crypto assets and fiat currency.¹³²⁰ Corresponding to the change in terminology from "virtual currency" to "crypto-asset", the change from "virtual currency exchange services" and "virtual currency exchange service providers" to "crypto-asset exchange services" and "crypto-asset exchange service providers" respectively is also necessary.¹³²¹

The 2019 Amendment Act brings virtual asset providers under the supervision of the JFSA.¹³²² VASPs offering custody services must register to offer crypto services.¹³²³ To obtain a licence, service providers must have representatives based in Japan, satisfy the JFSA that they have a secure operating system, have strong financial strength to maintain operations, have a compliance plan and assure that they are otherwise legally able to offer crypto services.¹³²⁴

In addition, service providers must keep client funds separate from their own funds.¹³²⁵ This can be achieved by engaging a third party, trust or other reliable method that is responsible for the safekeeping of clients' cash and crypto assets to ensure that clients recover the same value, type and quantity of crypto assets invested in the event of theft.¹³²⁶ In the same breath, to further enhance customer protection, users are entitled to preferential rights when requesting the return of crypto assets.¹³²⁷ The requirement for segregation of funds is subject to ongoing

¹³¹⁸ PWC 2019 <https://www.pwc.com/jp/en/legal/news/assets/legal-20190425-en.pdf>.

¹³¹⁹ Coinfirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

¹³²⁰ A 63(10) of the *PSA*.

¹³²¹ PWC 2019 <https://www.pwc.com/jp/en/legal/news/assets/legal-20190425-en.pdf>.

¹³²² Sygna 2023 <https://www.sygna.io/blog/japan-crypto-regulation-history-2014-2020/>; A 2(7)(ii) of the *PSA*.

¹³²³ Coinfirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>; A 63(2) of the *PSA*.

¹³²⁴ A 63(5)(1) (ii-x) of the *PSA*.

¹³²⁵ Kawai, Nagase, and Tan "Japan" 180.

¹³²⁶ Coinfirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

¹³²⁷ Kawai, Nagase, and Tan "Japan" 180.

monitoring by the JFSA and failure to comply with this requirement or other regulatory requirements will result in the withdrawal of the operating licence.¹³²⁸

5.3.2.2 The Financial Instruments and Exchange Act (FIEA)

With the 2019 amendment, derivatives based on virtual currencies were included in the scope of financial regulation in Japan.¹³²⁹ Crypto-assets, as defined in the amended PSA, have been included in the definition of "financial instruments", which are assets underlying derivative transactions as defined in the amended *FIEA*.¹³³⁰ Therefore, derivative transactions backed by crypto-assets, so-called crypto-asset-based derivatives, are subject to the rules that apply to ordinary derivative transactions under the *FIEA*.¹³³¹ Providers of crypto-asset exchanges (CAESPs) that trade crypto-asset-based derivatives must accordingly register as Type I Financial Instruments Businesses (FIBs), otherwise they may not continue to provide their services to clients.¹³³²

Another fundamental change under the amendment is the regulation of tokens issued via Initial Coin Offering (ICO), which differs under the PSA and the FIEA depending on the ICO system.¹³³³ Crypto-asset type tokens are bound by the regulations overseeing the sale of new crypto-assets (ICO Rules) under the PSA as published by its SRO, the JVCEA.¹³³⁴ In terms of the ICO Rules, ICOs can manifest themselves in two ways.¹³³⁵ Firstly, new tokens are issued and sold by CAESPs themselves, and secondly, the sale of newly issued tokens can be delegated by token issuers to CAESPs.¹³³⁶

Another category of token covered by the PSA is the prepaid card type, which is categorised as a prepaid payment instrument. It is offered in exchange for the token

¹³²⁸ A 63(17) of the *PSA*.

¹³²⁹ PCW 2019 <https://www.pwc.com/jp/en/legal/news/assets/legal-20190425-en.pdf>.

¹³³⁰ Omagari and Sako <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

¹³³¹ Omagari and Sako <https://www.klgates.com/Japans-New-Crypto-Regulation-2019-Amendments-to-Payment-Services-Act-and-Financial-Instruments-and-Exchange-Act-of-Japan-11-26-2019>.

¹³³² PCW 2019 <https://www.pwc.com/jp/en/legal/news/assets/legal-20190425-en.pdf>.

¹³³³ Kawai, Nagase, and Tan "Japan" 181.

¹³³⁴ Kawai, Nagase, and Tan "Japan" 181.

¹³³⁵ Kawai, Nagase, and Tan "Japan" 181.

¹³³⁶ Kawai, Nagase, and Tan "Japan" 181.

issuers offering goods or services.¹³³⁷ On the other hand, securities type tokens are subject to the *FIEA* and are defined as electronically recorded transferable rights (ERTRs),¹³³⁸ constituting Paragraph 1 Securities.¹³³⁹ Providers of ETRTs are expected to register as such. ETRTs are issued and presented to investors who contribute and invest assets in a company with the expectation that they will receive dividends or profits in return.¹³⁴⁰ The JSTOA helps with the regulation of security token offerings (STOs) and ICOs.¹³⁴¹

Having highlighted the above changes to the Japanese cryptocurrency landscape, it is worth noting that the 2019 amendment also imposes liability on exchange providers through various criminal and civil penalties for violations of the PSA.¹³⁴² This approach seems to focus on the obligations of crypto service providers and less on crypto users, which essentially improves their protection.¹³⁴³

It is evident from the above analysis that Japan has adopted a constructive and forward-looking approach to the regulation of crypto assets. Certain aspects of its framework, such as the regulation of crypto asset service providers (CASPs) and the enforcement of anti-money laundering measures, bear resemblance to South Africa's emerging regime. The crucial distinction, however, lies in Japan's decision to establish a fully developed regulatory framework and to formally recognise crypto assets as a means of payment, a step that South Africa has not yet taken, as its regulatory landscape continues to evolve.

5.4 The United States

By its Constitution, the United States is a federal government, with administrative powers divided between the national government and state and local governments.¹³⁴⁴ It is characteristic of the federal system in the USA that the Federal

¹³³⁷ Kawai, Nagase, and Tan "Japan" 182.

¹³³⁸ Coinfirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

¹³³⁹ Kawai, Nagase, and Tan "Japan" 182.

¹³⁴⁰ Confirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

¹³⁴¹ Confirm <https://www.coinfirm.com/blog/japan-crypto-asset-regulations/>.

¹³⁴² Kawai, Nagase, and Tan "Japan" 182-184.

¹³⁴³ Kawai, Nagase, and Tan "Japan" 184.

¹³⁴⁴ National Geographic <https://education.nationalgeographic.org/resource/roles-state-and-federal-governments/>.

Constitution, as the supreme law, forms the basis on which all national laws and the laws of the individual states and municipalities are enacted.¹³⁴⁵ This means that each federal state has its own constitution and court system within the limits of the federal constitution and may enact laws that grant its citizens comprehensive rights that apply specifically to them.¹³⁴⁶

Because of this governmental structure, the US has a complex regulatory system in which different regulators have taken different approaches to regulation in general and, in particular, to the context of this work, the regulation of virtual currencies.¹³⁴⁷ Many regulators have created overlapping and sometimes conflicting jurisdictions for participants in virtual currency activities, who must consider both federal and state legal and regulatory regimes before engaging in virtual currency activities.¹³⁴⁸ At federal level, participants must take particular account of supervision by the banking regulatory authorities, the US Securities and Exchange Commission (SEC), the US Commodity Futures Trading Commission (CFTC), the Financial Crimes Enforcement Network (FinCEN) and the Office of Foreign Asset Control (OFAC) of the US Treasury Department.¹³⁴⁹

At the state level, participants must take into account, among other things, the state framework conditions for the authorisation of virtual currencies, the requirements for money service companies and the applicable anti-fraud laws. Another important aspect is the applicable tax laws.¹³⁵⁰ The multi-layered approaches to cryptocurrency in the USA are described below.

5.4.1 Securities and investment laws

Participants in the virtual currency market that meet the legal definition of brokers, dealers, exchanges, alternative trading platforms and clearing houses and that

¹³⁴⁵ National Geographic <https://education.nationalgeographic.org/resource/roles-state-and-federal-governments/>.

¹³⁴⁶ National Geographic <https://education.nationalgeographic.org/resource/roles-state-and-federal-governments/>.

¹³⁴⁷ Austin "United States" 329.

¹³⁴⁸ Austin "United States" 329.

¹³⁴⁹ Austin "United States" 329.

¹³⁵⁰ Austin "United States" 329.

engage in activities that are classified as securities are subject to regulation under the Securities Act and the requirements for registration and the associated licence categories under the *Securities Exchange Act* (SEA),¹³⁵¹ under the administration of the SEC.¹³⁵² Under Section 17A(b)(1) of the SEA, the SEC may, in its discretion, grant participants conditional or unconditional exemptions from registration.¹³⁵³ Once participants have registered, they must disclose information about the offer and sale of securities.¹³⁵⁴ In several cases, the SEC has successfully brought enforcement actions in the courts against participants who engage in securities transactions but fail to register as required.¹³⁵⁵

The authorisation of Bitcoin exchange-traded funds (ETFs) in the US by the Security and Exchange Commission (SEC) in January 2024 has confirmed cryptocurrencies as a viable asset class.¹³⁵⁶ The expected authorisation of ETFs for various cryptocurrencies will further consolidate the establishment of this asset class in mainstream finance.¹³⁵⁷ Following approval by the SEC, the price of Bitcoin rose from around USD 46,000 to over USD 72,000 by March 2024, reaching a new all-time high.¹³⁵⁸ According to financial advisors, this integration into the financial mainstream could promote the perception of cryptocurrencies as a legitimate financial investment.¹³⁵⁹ The interest of private investors has definitely increased, as the peak values in Google searches following the SEC's announcement show.¹³⁶⁰

5.4.2 *Commodities laws*

Virtual currencies that fall under the definition of a commodity under the *Commodity Exchange Act* (CEA) and derivative transactions relating to them are regulated by the

¹³⁵¹ *Securities Exchange Act* of 1934.

¹³⁵² Austin "United States" 335.

¹³⁵³ Austin "United States" 341.

¹³⁵⁴ Austin "United States" 367.

¹³⁵⁵ Ehret 2021 <https://www.reuters.com/legal/transactional/us-crypto-framework-begins-evolve-special-report-update-2021-10-22/>.

¹³⁵⁶ Gensler 2024 <https://www.sec.gov/newsroom/speeches-statements/gensler-statement-spot-bitcoin-011023>.

¹³⁵⁷ Luno "The State of Crypto in Africa" 22.

¹³⁵⁸ De Best 2024 <https://www.statista.com/statistics/326707/bitcoin-price-index/>.

¹³⁵⁹ Cooper and Wee 2024 <https://www.reuters.com/markets/currencies/bitcoin-back-rise-after-vaulting-new-record-2024-03-06/>.

¹³⁶⁰ Bitcoin.com News 2024 <https://news.bitcoin.com/bitcoin-hits-peak-interest-on-google-trends-following-secs-etf-approvals/>.

Commodity Futures Trading Commission (CFTC).¹³⁶¹ Derivatives exchanges are subject to registration, reporting and record-keeping obligations in accordance with CFTC Rules.¹³⁶² The CFTC also exercises anti-fraud and anti-tampering jurisdiction with respect to virtual currency transactions and ensures that there is no fraud, deception or manipulation with respect to transactions conducted on a virtual currency platform.¹³⁶³ The CFTC has brought cases against derivatives exchanges for violations such as failure to implement anti-money laundering policies, wash trading and failure to register.¹³⁶⁴

5.4.3 Prudential regulation

At a federal level, US prudential banking regulators¹³⁶⁵ and the Consumer Financial Protection Bureau (CFPB) have not adopted a definitive approach to regulating the virtual currency activities of the companies they supervise.¹³⁶⁶ The scope of its competence and position in relation to virtual currencies is instead defined in various guidance documents or warnings to the public relating to virtual currencies.¹³⁶⁷ At state level, approaches vary from state to state, but the positions on the regulation of virtual currencies are clear.¹³⁶⁸ Some states have either enacted special laws for virtual currencies, amended existing laws for the financial sector, exercised limited oversight over virtual currency activities or refused to take a position altogether.¹³⁶⁹

To harmonize these state approaches, in 2017, the *Uniform Regulation of Virtual-Currency Businesses Act (URVCBA)*¹³⁷⁰ was enacted as a statutory framework aimed at guiding states on the regulation of virtual currency related business activity and

¹³⁶¹ Ehret 2021 <https://www.reuters.com/legal/transactional/us-crypto-framework-begins-evolve-special-report-update-2021-10-22/>.

¹³⁶² Austin "United States" 367.

¹³⁶³ Austin "United States" 341.

¹³⁶⁴ Austin "United States" 344.

¹³⁶⁵ CRS "Who Regulates Whom? An Overview of the U.S. Financial Regulatory Framework" 8. Namely, the Board of Governors of the Federal Reserve System (the Fed), the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC).

¹³⁶⁶ Austin "United States" 345.

¹³⁶⁷ Austin "United States" 345.

¹³⁶⁸ Austin "United States" 349.

¹³⁶⁹ Austin "United States" 349.

¹³⁷⁰ *Uniform Regulation of Virtual-Currency Businesses Act* 2017.

the promotion of consumer protection.¹³⁷¹ The rationale was that over time, as individual states decide to enact their own regulatory regimes as virtual currencies become more widely accepted, the *URVCBA* would serve as a guide.¹³⁷² Indeed, some states have introduced legislation to adopt the *URVCBA*.¹³⁷³

The *URVCBA* is heavily influenced by the New York State licence requirements for virtual currencies, known as BitLicense.¹³⁷⁴ In 2015, the New York Department of Financial Services (NYDFS) created a comprehensive licencing and regulatory framework for companies operating in connection with virtual currencies in the state of New York for the first time in the USA.¹³⁷⁵ The BitLicense framework is tailored to virtual currencies and mimics the licencing and regulatory framework of the banking sector, for example by requiring a licence before participants can engage in virtual currency activities, at a predetermined licence fee.¹³⁷⁶

In addition, licensees are subject to a number of substantive requirements that they must meet, such as the implementation of a compliance programme, capital and custody requirements, transaction record-keeping and reporting obligations, consumer protection measures, confirmation of transactions and disclosure of material risks.¹³⁷⁷ Similar to the BitLicense regulation, the *URVCBA* requires the licencing of participants who conduct business with virtual currencies and associated requirements.¹³⁷⁸ A detailed examination of the similarities and differences between the BitLicense Framework and the *URVCBA* is not the subject of this thesis.

¹³⁷¹ ULC "A Few Facts about the Uniform Regulation of Virtual Currency Businesses Act" 1.

¹³⁷² Austin "United States" 355.

¹³⁷³ Austin "United States" 355.

¹³⁷⁴ De Waal and Yoon 2020 <https://www.natlawreview.com/article/louisiana-serves-new-virtual-currency-business-law-cajun-style>.

¹³⁷⁵ Horn 2015 <https://www.natlawreview.com/article/nydfs-releases-final-rules-licensing-virtual-currency-businesses-ny-new-york-departm>.

¹³⁷⁶ Horn 2015 <https://www.natlawreview.com/article/nydfs-releases-final-rules-licensing-virtual-currency-businesses-ny-new-york-departm>.

¹³⁷⁷ Horn 2015 <https://www.natlawreview.com/article/nydfs-releases-final-rules-licensing-virtual-currency-businesses-ny-new-york-departm>.

¹³⁷⁸ Austin "United States" 355.

5.4.4 Anti-money laundering

In the US, financial sector AML obligations are imposed by the *Bank Secrecy Act (BSA)* at federal level.¹³⁷⁹ These obligations are enforced by FinCEN through the establishment of AML regulations in cooperation with other federal agencies that also exercise supervisory authority over the relevant institutions, such as banks.¹³⁸⁰ This is because financial institutions such as banks are generally used as channels for money laundering,¹³⁸¹ therefore, the *BSA* prescribes measures such as the recording and retention of transactions, the reporting of thresholds and suspicious transactions and the implementation of a risk-based AML and customer due diligence programme.¹³⁸²

To lay the groundwork for the regulation of cryptocurrencies under the BSA, in 2011 FinCEN expanded the definition of money transmission services to include the transfer of "value that substitutes for currency" and, through the passage of the *AML Act* of 2020, expanded the definition of "financial institution" to include entities involved in the transfer of "something of value that substitutes for currency".¹³⁸³ To remove any ambiguity regarding the applicability of the BSA requirements to companies conducting activities related to virtual currencies, the value that replaces the currency is defined by the US Treasury Department as a "monetary instrument" and is thus subject to US anti-money laundering requirements.¹³⁸⁴

The above-mentioned AML compliance obligations under the BSA apply not only to traditional financial institutions, but also to MSBs.¹³⁸⁵ In order to fulfil the BSA requirements, MSBs must register with the Ministry of Finance.¹³⁸⁶ FinCEN has published guidance and administrative instructions explaining the applicability of the

¹³⁷⁹ Austin "United States" 356.

¹³⁸⁰ Austin "United States" 356.

¹³⁸¹ CRS "Bitcoin: Questions, Answers, and the Analysis of Legal Issues" 20.

¹³⁸² CRS "Bitcoin: Questions, Answers, and the Analysis of Legal Issues" 20.

¹³⁸³ Austin "United States" 356.

¹³⁸⁴ Austin "United States" 356.

¹³⁸⁵ CRS "Bitcoin: Questions, Answers, and the Analysis of Legal Issues" 20.

¹³⁸⁶ CRS "Bitcoin: Questions, Answers, and the Analysis of Legal Issues" 20.

BSA to different categories of actors dealing in cryptocurrencies and providing guidance on which actors fall within the definition of MSBs.¹³⁸⁷

All US jurisdictions regulate money transmitters through licencing and related requirements in addition to the federal requirements of the *BSA*.¹³⁸⁸ It is worth noting that while state money transmitter laws differ with respect to the activities that warrant licencing and the requirements for obtaining a licence, FinCEN's requirement to register a virtual currency business as an MSB under the *BSA* does not necessarily mean that a state will make the same classification in its laws.¹³⁸⁹

Many states have already incorporated the *BSA*'s AML obligations into their own money transmission laws, and some impose additional AML obligations on top of the federal requirements.¹³⁹⁰ Therefore, virtual currency participants may be subject to federal AML compliance enforcement at the state level, and they may also be subject to additional AML compliance to the extent their activities warrant a licence.¹³⁹¹

5.4.5 Tax

In 2014, the Internal Revenue Service (IRS) issued Notice 2014-21, which is intended to provide guidance on the application of existing tax laws to transactions involving virtual currencies.¹³⁹² For purposes of the Notice, virtual currencies are treated for federal income tax purposes as assets governed by the standard tax rules applicable to asset transfers.¹³⁹³ This is the result of one of the recommendations in the 2013 Government Accountability Office (GAO) report calling on the IRS to develop guidance for reporting cryptocurrency transactions,¹³⁹⁴ following the tax compliance risks identified in the report, including taxpayers' lack of knowledge of tax requirements, misrepresentation of income, uncertainty in the calculation of

¹³⁸⁷ FinCEN 2013 http://fincen.gov/statutes_regs/guidance/pdf/FIN-2013-G001.pdf; FinCEN 2014 http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2014-R001.pdf.

¹³⁸⁸ Austin "United States" 364.

¹³⁸⁹ Austin "United States" 364.

¹³⁹⁰ Austin "United States" 364.

¹³⁹¹ Austin "United States" 365.

¹³⁹² IRS 2014 <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

¹³⁹³ IRS 2014 <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

¹³⁹⁴ GAO 2013 "Virtual Economies and Currencies: Additional IRS Guidance Could Reduce Tax Compliance Risks" 12-14.

profits, underreporting of third party information and tax evasion in relation to virtual economies and currencies.¹³⁹⁵

In 2019, the IRS issued additional guidance on determining the fair market value and tax basis of virtual currencies in Revenue Ruling 2019-14 and the accompanying Frequently Asked Questions document.¹³⁹⁶ It extends the application of the principles of Notice 2014-21 to various other additional example scenarios, thereby confirming the consistency of the tax treatment of virtual currencies with that of other property.¹³⁹⁷

Be that as it may, the taxation of virtual currencies remains uncertain in many areas. Once earned and taxed, virtual currency is just property, but depending on how the currency is used and where the activities take place, there are different tax consequences for the taxpayer.¹³⁹⁸

5.4.6 Consumer Protection

The Consumer Financial Protection Bureau (CFPB) has set itself the task of informing consumers about the risks associated with virtual currencies in the interests of consumer protection.¹³⁹⁹ For example, in 2014, the CFPB issued its first public warning regarding virtual currency activities and began accepting complaints from consumers about virtual currencies as a possible first step towards regulating virtual currencies.¹⁴⁰⁰ Nonetheless, in 2016, the CFPB rejected the public's proposal to include virtual currencies in the scope of its regulation of prepaid products.¹⁴⁰¹

¹³⁹⁵ GAO 2013 "Virtual Economies and Currencies: Additional IRS Guidance Could Reduce Tax Compliance Risks" 12-14.

¹³⁹⁶ Lom, Schroeder, Ross and others 2019 <https://www.nortonrosefulbright.com/en-mh/knowledge/publications/e29130a9/irs-releases-first-cryptocurrency-guidance-in-five-years>; IRS 2019 <https://www.irs.gov/individuals/international-taxpayers/frequently-asked-questions-on-virtual-currency-transactions>.

¹³⁹⁷ Austin "United States" 383.

¹³⁹⁸ Austin "United States" 386.

¹³⁹⁹ Austin "United States" 349.

¹⁴⁰⁰ CFPB 2014 <https://www.consumerfinance.gov/about-us/newsroom/cfpb-warns-consumers-about-bitcoin/>.

¹⁴⁰¹ Austin "United States" 349.

It also refused to pronounce itself on the applicability of Regulation E to virtual currencies.¹⁴⁰² As a result, the CFPB has not issued any public enforcement actions against participants in the virtual currency market, although the agency does receive some complaints related to virtual currencies.¹⁴⁰³ It is worth noting that these complaints represent only a small portion of the total complaints received by the CFPB.¹⁴⁰⁴

5.5 Comparative insights and conclusion

The comparative analysis of Japan, Canada, the United States, and South Africa reveals critical lessons for shaping an effective regulatory framework for crypto assets. While each jurisdiction reflects a unique legal, economic, and institutional context, several overarching insights emerge.

Japan has taken a proactive stance, establishing a comprehensive framework that not only mandates exchange registration and strict AML/CFT compliance but also recognises crypto assets as a legitimate means of payment. This positions Japan as a global leader in regulatory clarity and consumer protection. In contrast, Canada has pursued a more measured yet effective approach by integrating crypto intermediaries into its financial surveillance regime through FinTRAC registration. This strategy emphasises accountability without stifling innovation.

The United States, however, illustrates the risks of regulatory fragmentation. With overlapping federal and state jurisdictions, inconsistent obligations, and variable consumer protections, the U.S. landscape underscores the challenges of decentralised oversight. South Africa's current regulatory development reflects elements of both Japan and Canada. Its recognition of crypto assets as financial products under the FAIS Act and the extension of AML/CFT obligations to CASPs are positive steps. However, the framework remains less mature, lacking full legal

¹⁴⁰² Austin "United States" 349.

¹⁴⁰³ CFPB 2020 https://files.consumerfinance.gov/f/documents/cfpb_consumer-response-annual-report_2019.pdf.

¹⁴⁰⁴ CFPB 2020 https://files.consumerfinance.gov/f/documents/cfpb_consumer-response-annual-report_2019.pdf.

recognition of crypto for payments and exhibiting a less coordinated institutional approach.

Three central insights stand out from this comparative study. First, piecemeal regulation is inadequate. A comprehensive and centralised framework is essential to ensure legal certainty, consistency, and market confidence. Second, robust consumer protection, through licensing, transparency, and accessible remedies, must be a regulatory priority. Japan's model demonstrates the value of such a proactive stance. Third, embedding strong AML/CFT safeguards, as seen in Canada's integration of crypto entities into its anti-money laundering regime, is critical for addressing financial crime risks.

Equally important is the need to avoid regulatory fragmentation. The U.S. case warns of the inefficiencies and uncertainties created by overlapping jurisdictions. For South Africa, this underscores the need for centralised and coordinated oversight, whether through a lead regulator or clearly defined mandates shared among the SARB, FSCA, FIC, and SARS.

Furthermore, sustainability cannot be overlooked. Given South Africa's energy challenges, any regulatory regime must take into account the environmental impact of crypto activities, particularly mining, and promote energy-conscious innovation.

Taken together, these insights suggest that South Africa's current regulatory posture, though moving in the right direction, remains foundational. The country is at a critical juncture where it must shift from incrementalism to a holistic, future-ready framework. Such a regime should balance innovation with accountability, foster financial inclusion, and remain adaptable to rapid technological evolution.

In conclusion, the comparative experiences of Japan, Canada, and the United States make it clear that South Africa cannot afford to remain reactive. By drawing on international best practices while remaining attentive to local realities, South Africa can build a coherent and responsive regulatory architecture. This will not only mitigate systemic and consumer risks but also lay the groundwork for sustainable growth and innovation in its emerging crypto economy.

The next chapter consolidates these findings by offering conclusions and recommendations for a coherent, future-ready framework for the regulation of crypto assets in South Africa.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

From its rudimentary beginnings, the international monetary system (IMS) has evolved into the sophisticated, technologically advanced structure it is today. Changes in global power dynamics, technological advances and economic practices are all reflected in this evolution.

Due to their special design and their interaction with the current monetary system, virtual currencies, especially cryptocurrencies, have become an important topic of global financial regulation over the last ten years, according to the study that traces this development.

As it was not originally intended for such developments, the current regulatory system is struggling to cope with the problems caused by the novelty of cryptocurrencies. The difficulties associated with cryptocurrencies are increasing with global awareness and acceptance. Appropriate legislative measures are therefore urgently needed to solve the problems associated with cryptocurrencies and create an atmosphere that supports the expansion and progress of innovation.

The study focused on South Africa and sought to address these issues by promoting the creation of a strong legal and regulatory framework for cryptocurrencies. The study was guided by the belief that cryptocurrencies, due to their decentralised nature and pseudo-anonymity, as well as the lack of a central regulatory authority, can be misused to support illicit financial activities, putting consumers at greater risk and jeopardising financial stability. It has been suggested that regulation of cryptocurrencies could lend legitimacy to the invention and reduce the threats identified.

With this in mind, the following primary research question was developed, which this study aimed to address:

To what extent can South Africa's existing legal and regulatory framework accommodate and govern the use of cryptocurrencies, and how should it be reformed to ensure their effective and secure integration into the financial sector?

This research question was supported by the following sub-questions, which formed the basis for the individual chapters:

- a) What are cryptocurrencies, and how do they function within the modern financial ecosystem? Chapter 3.
- b) What legal and economic roles do cryptocurrencies play in both traditional and emerging financial systems? Chapter 3.
- c) What is the current legal and regulatory position of cryptocurrencies in South Africa, and what limitations or gaps exist within this framework? Chapter 4.
- d) To what extent does the existing South African financial regulatory framework accommodate cryptocurrency governance, and where does it fall short? Chapter 4.
- e) What legal and regulatory reforms are necessary to create a coherent, effective, and future-oriented framework for cryptocurrency regulation in South Africa? Chapter 4.
- f) How have selected jurisdictions such as Canada, Japan and the United States approached the regulation of cryptocurrencies, and what lessons can be drawn from their experiences? Chapter 5.

The research utilised a qualitative, desk-based methodology based on a comprehensive review of literature from primary and secondary sources, including national and foreign legislation, case law, academic articles, dissertations, internet sources and government policy documents.

It is worth noting that the study had two major limitations. First, the limited literature on cryptocurrency regulation, due to its novel and evolving nature, limited the scope and volume of research, necessitating constant revision, with the majority of the work being produced in 2021. Second, the author had to rely on insights from

economics and social sciences for context, which limited the depth of analysis for some concepts due to a lack of expertise in these areas.

The following section highlights and summarises the results of the study.

6.2 *Summary of the analysis*

6.2.1 Evolution of the international monetary system

Chapter 2 examined the historical evolution of the International Monetary System, tracking its transformation from the rigid structure of the gold standard to today's fragmented and increasingly digital financial landscape.

It analysed the major milestones, including the collapse of the Bretton Woods system, the rise of fiat currencies and floating exchange rates, and the growing influence of institutions such as the International Monetary Fund and the World Bank. The chapter placed particular focus on the recurring global financial crises, most notably, the 2008 global financial crisis, which exposed deep systemic flaws, including overreliance on centralised institutions, lack of transparency, and unequal access to financial services.

The chapter reflected how these failures played a key role in driving interest toward decentralised alternatives. The rise of cryptocurrencies, especially Bitcoin, was framed as both a technological innovation and a form of resistance to the perceived instability and inequity of the existing IMS. This chapter laid the groundwork for understanding how digital assets are increasingly positioned not just as speculative tools, but as potential building blocks of a reimagined global monetary system.

Chapter three was guided by the following questions:

- *What are cryptocurrencies, and how do they function within the modern financial ecosystem?*
- *What legal and economic roles do cryptocurrencies play in both traditional and emerging financial systems?*

As demonstrated in Chapter 3, cryptocurrencies are decentralised digital assets built on blockchain technology, designed to function as mediums of exchange, stores of value, or investment instruments. Their decentralised structure bypasses central banks and traditional intermediaries, enabling peer-to-peer transactions across borders. In the modern financial ecosystem, cryptocurrencies introduce opportunities for innovation, lower-cost transfers, and inclusion for the unbanked. However, they also present risks, including volatility, systemic uncertainty, and their potential misuse for illicit activities.

Chapter 3 also illustrated that in traditional financial systems, cryptocurrencies challenge the monopoly of central banks and established intermediaries by offering alternative payment and investment channels. In emerging systems, they often fulfil a more transformative role, enhancing access to finance where banking infrastructure is underdeveloped. Economically, cryptocurrencies can promote investment and technological growth but may also destabilise monetary policy and undermine consumer protection if left unregulated.

6.2.3 The legal and regulatory response to cryptocurrency: South Africa

Chapter 4 was focused on cryptocurrency regulation in South Africa, guided by the following questions:

- *What is the current legal and regulatory position of cryptocurrencies in South Africa, and what limitations or gaps exist within this framework?*
- *To what extent does the existing South African financial regulatory framework accommodate cryptocurrency governance, and where does it fall short?*
- *What legal and regulatory reforms are necessary to create a coherent, effective, and future-oriented framework for cryptocurrency regulation in South Africa?*

Chapter 4 revealed that South Africa has adopted a phased regulatory approach. Key developments include the classification of crypto assets as financial products under the *FAIS Act*, licensing requirements for crypto asset service providers (CASPs), and

their designation as accountable institutions under the *Financial Intelligence Centre Act*. While these measures mark progress, the framework remains fragmented. Gaps persist in consumer protection, dispute resolution, centralised oversight, environmental regulation, and the legal recognition of crypto assets.

As further argued in Chapter 4, South Africa's current framework accommodates cryptocurrency governance only partially. It has succeeded in extending AML/CFT obligations and establishing preliminary licensing requirements, but it has not yet developed a comprehensive or coordinated system. The absence of clear inter-agency mandates, weak consumer safeguards, and unaddressed environmental concerns mean that governance remains incomplete and reactive, leaving investors exposed and systemic integrity vulnerable.

Thus, chapter 4 concluded that South Africa requires a more holistic and adaptive framework, which should include:

- a. Dedicated legislation providing clarity on the status, definition, and treatment of crypto assets.
- b. Centralised or clearly coordinated oversight, either through a single regulatory authority or harmonised mandates across SARB, FSCA, FIC, and SARS.
- c. Enhanced consumer protection, including mandatory disclosures, segregation of funds, and access to dispute resolution mechanisms.
- d. Strengthened AML/CFT compliance aligned with FATF standards.
- e. Environmental regulation of crypto mining, considering South Africa's energy and climate constraints.
- f. Innovation support through regulatory sandboxes and structured dialogue with the private sector.

6.2.4 The legal and regulatory responses to cryptocurrency: Japan, Canada, and the US

Chapter 5 was guided by the following question:

- *How have selected jurisdictions such as Japan, Canada, and United States approached the regulation of cryptocurrencies, and what lessons can be drawn from their experiences?*

Chapter 5 demonstrated that international approaches provide valuable lessons. It noted that Japan has implemented a comprehensive, centralised regime, requiring exchange registration, imposing strict consumer protection measures, and recognising crypto as a means of payment.

It further noted that Canada has integrated intermediaries into its AML framework through FinTRAC, striking a balance between accountability and innovation. The United States, by contrast, illustrates the dangers of fragmentation. Overlapping federal and state authorities have created uncertainty, inconsistency, and reliance on enforcement rather than clarity.

These comparative lessons highlight the importance of centralisation, legal certainty, and adaptability, all of which are necessary for South Africa to avoid similar pitfalls.

- *Conclusions and recommendations*

Chapter 6, brings the study to its conclusion by synthesising the key findings from the preceding chapters and addressing the research questions that guided the analysis. It highlights the opportunities and risks posed by cryptocurrencies, evaluates South Africa's phased but fragmented regulatory response, and draws comparative lessons from Canada, Japan, and the United States. Building on these insights, the chapter advances a set of recommendations aimed at developing a coherent, adaptive, and forward-looking regulatory framework for South Africa. In doing so, it emphasises the need to balance innovation with accountability, consumer protection with systemic stability, and domestic realities with international best practice.

6.3 The way forward

To address the shortcomings identified in the current framework and to position South Africa as a credible player in the global digital economy, this chapter advances a set of targeted reforms. These recommendations are not intended as prescriptive solutions, but as guiding principles for building a regulatory architecture that is both robust and adaptive. They emphasise the need for legal clarity, institutional coordination, consumer protection, environmental accountability, and a balanced approach that fosters innovation while safeguarding financial integrity.

Recommendation 1: Adopt a Risk-Based, Function-Oriented Classification of Crypto Assets

One of the critical shortcomings of existing regulatory efforts, both in South Africa and abroad, is the tendency to treat all cryptocurrencies uniformly. This approach ignores the evolving nature and functionality of different crypto assets ranging from payment tokens and stablecoins to utility and security tokens.

Recommendation:

South Africa should adopt a functional classification system similar to that of Japan's *Payment Services Act* and the U.S. SEC's approach, where crypto assets are regulated based on their use and characteristics. This would allow for tailored obligations, reduce regulatory ambiguity, and ensure assets fall within the appropriate legal categories, for example, as securities, commodities, or payment instruments.

Recommendation 2: Establish a Unified, Adaptive Legislative Framework

Current South African regulations draw from a patchwork of laws, including the *FAIS Act*, *FIC Act*, and tax legislation, resulting in fragmented oversight.

Recommendation:

Enact a comprehensive digital assets regulatory framework that consolidates cryptocurrency regulation under a single, coherent statute. This framework should provide clear definitions and asset categories, enable delegated rule-making to adapt

to technological change, as well as empower the FSCA or a dedicated digital assets authority with oversight and enforcement powers.

The Canadian model, particularly the integration of securities and anti-money laundering regulations under a unified system, offers valuable guidance for harmonising oversight without overburdening the innovation ecosystem.

Recommendation 3: Enhance Collaboration with Traditional Financial Institutions

Given that the risks associated with cryptocurrencies often intersect with the conventional banking system, collaboration between regulators, banks, and crypto asset service providers is essential.

Recommendation:

South African banks should be encouraged, through guidance from the Prudential Authority and FSCA, to integrate enhanced KYC/AML procedures for customers interacting with cryptocurrency platforms; monitor cryptocurrency wallet activity through risk-based transaction surveillance; report suspicious activity in collaboration with the Financial Intelligence Centre "FIC".

The United States' FinCEN guidance and bank-FinTech collaboration practices provide a useful model for balancing oversight with operational flexibility.

Recommendation 4: Introduce Licensing and Registration Requirements for All Crypto Asset Service Providers "CASPs"

Unregulated or under-regulated service providers present significant financial crime and consumer protection risks.

Recommendation:

Expand the current FAIS-based licensing model into a dedicated CASP licensing regime, aligned with FATF Recommendation 15. Licensing should require robust internal controls, operational and cybersecurity standards, risk disclosures and business continuity plans and ongoing compliance reporting.

Japan's Financial Services Agency "FSA" licensing regime for exchanges, with strict capital requirements and consumer protection provisions, has effectively raised standards while legitimising the industry.

Recommendation 5: Strengthen Consumer Protection and Financial Literacy

As retail participation grows, ensuring consumer safety is vital.

Recommendation:

First, a publicly accessible registry of licensed crypto asset service providers should be established and maintained by the relevant regulatory authority, such as the FSCA. This registry would serve not only to enhance transparency and market integrity, but also to help consumers identify legitimate service providers and avoid unlicensed or fraudulent entities. Second, national awareness campaigns should be launched to improve digital financial literacy across all demographic groups, with a particular focus on educating users about the risks and responsibilities associated with cryptocurrency use. These initiatives can be modelled on the successful efforts of Canada's Financial Consumer Agency (FCAC), which has implemented multi-channel strategies to build consumer awareness in the digital finance sector.

Finally, a low-cost and accessible dispute resolution mechanism tailored to crypto-related complaints should be introduced. Drawing from Japan's alternative dispute resolution (ADR) framework for financial services, such a mechanism would offer consumers a streamlined and impartial avenue to resolve grievances without resorting to costly litigation, thereby enhancing trust and fairness in the crypto market.

Recommendation 6: Promote Digital Infrastructure Development

Cryptocurrency adoption should not deepen digital inequality. Investment in infrastructure is necessary for equitable access.

Recommendation:

South Africa should prioritise expanding internet and mobile connectivity in underserved regions. This foundational step would enable broader participation in

the digital economy. Additionally, the government should support the development and rollout of low-fee mobile payment platforms that integrate blockchain infrastructure, facilitating cost-effective and secure transactions. Public-private partnerships should also be encouraged to drive innovation in blockchain-enabled financial services, leveraging both state capacity and private sector expertise to develop scalable, socially impactful solutions.

Recommendation 7: Safeguard the Decentralised Nature of Crypto Networks

Regulatory efforts must avoid overreach that undermines the inherent decentralisation of blockchain systems, which is vital for innovation, transparency, and resilience.

Recommendation:

South African regulators should avoid imposing architecture-specific compliance obligations, such as requirements that effectively mandate the use of central intermediaries in decentralised systems. Instead, regulatory efforts should adopt an outcome-based approach, prioritising risk mitigation, transparency, and accountability regardless of the underlying technical design. In line with recent U.S. Treasury discussions, oversight mechanisms should focus on key entry points into the decentralised finance "DeFi" ecosystem, such as custodial wallets, decentralised exchanges, and fiat on- and off-ramps, where meaningful regulatory engagement is both practical and effective without compromising decentralisation itself.

Recommendation 8: Enable Regulatory Sandbox and Innovation Hubs

To test new regulatory approaches and emerging technologies, a controlled environment is essential.

Recommendation:

Expand the FSCA's regulatory sandbox to allow participation from blockchain startups, DeFi platforms, and tokenisation initiatives. This should be combined with provisional licensing, regulatory waivers for limited-use cases, and real-time engagement between regulators and innovators.

The Canadian Securities Administrators "CSA" and Japan's fintech innovation hubs provide models for enabling experimentation without compromising oversight.

Recommendation 9: Facilitate Regional and International Regulatory Alignment

Crypto markets are inherently cross-border, and unilateral regulation risks being ineffective.

Recommendation:

South Africa should strengthen its engagement with international standard-setting bodies such as the Financial Action Task Force (FATF) and the International Organization of Securities Commissions (IOSCO) to ensure its regulatory framework aligns with evolving global norms. At the regional level, it is imperative that South Africa take a leading role in harmonising cryptocurrency regulations within the Southern African Development Community (SADC), promoting consistency, reducing regulatory arbitrage, and facilitating cross-border enforcement. Additionally, the country should leverage its bilateral relationships with jurisdictions such as the United States, and Japan to access technical support, regulatory expertise, and best practices through structured knowledge exchange and cooperation.

Recommendation 10: Commit to Continuous Review and Policy Iteration

Given the pace of innovation, static laws will quickly become obsolete.

Recommendation:

South Africa should embed flexibility into its regulatory instruments by allowing for periodic updates and revisions. This adaptability will enable regulators to respond proactively to emerging risks and innovations. Regular regulatory impact assessments and structured consultations with industry stakeholders should be mandated to evaluate the effectiveness of existing measures and inform future policy decisions. Furthermore, the establishment of an inter-agency crypto policy task force, comprising representatives from key financial, legal, and technological bodies, would provide a coordinated mechanism for monitoring industry trends, assessing systemic risks, and guiding coherent and timely regulatory reforms.

This research contributes to academic discourse and regulatory policy by situating South Africa's evolving framework within a global context, identifying its limitations, and proposing reforms grounded in comparative best practice. South Africa stands at a critical juncture: while its phased approach has laid an initial foundation, persistent challenges of fragmentation, weak consumer protection, and regulatory uncertainty remain. Lessons from Japan, Canada, and the United States highlight the need for proactive, coordinated, and adaptive regulation to harness opportunities while mitigating risks.

In conclusion, fragmented policy responses are inadequate. South Africa requires a coherent, principled, and adaptive legal framework that evolves with technological change, balances certainty with flexibility, and protects users while fostering innovation. A risk-sensitive and functionally grounded regulatory model, anchored in legal clarity and institutional coordination, is essential to safeguard the financial system and unlock the transformative potential of digital assets. With timely reform, South Africa can not only secure its domestic market but also assume a leadership role in shaping digital asset governance on the African continent.

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