

**THE FEASIBILITY OF THE ADOPTION OF DIGITAL CURRENCIES IN
UGANDA**

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DECLARATION.

I INNOCENT ANZO DRAMANI, declare that this paper represents my own original research, without any plagiarism, and has not been previously submitted for academic recognition or award.

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APPROVAL

This academic paper, titled "The Feasibility of Adopting Digital Currencies in Uganda," has been submitted by Innocent Anzo Dramani to the School of Business at the Uganda Christian University. It was completed in partial fulfillment of the requirements for a Bachelor of Science degree in Economics and Statistics, with the approval and oversight of the author's academic supervisor.

Signed by: 

MR. ALEKO GODFREY

Date: 06/09/2024

DEDICATION

This writing is dedicated to the Almighty God in thanks for the life, health, knowledge, and wisdom obtained to pursue the course, my father Mr. Martin Dramani Dominic, Mother Mary Achiro Stephen for providing the resource and guidance that I duly needed in the pursuit of my studies, Brothers Shadrack Taluga Dramani, Bisso Hope Dramani, Moga Umar, Emmanuel Ivu Dramani, Drago Simon, Patrick Vuchiri and Richard Aciga contributing generously to my education journey and my sisters Gracia Ayuru Dramani, Ayia Stella, Muraa Annet, Andrua Jennifer for being support pillars in my growth journey. In all giving thanks to everyone that God placed on my way to help me achieve my goals

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LIST OF ABBREVIATIONS:

SWIFT - Society for World Interbank Financial Telecommunication

GDP – Gross Domestic Product

SMEs – Small and Medium Enterprises

CBDC – Central Bank Digital Currencies

mCBDC – Multi Central Bank Digital Currency

BTC – Bitcoin

USD – United States Dollar

UGX – Uganda shilling

IBIT - iShare Bitcoin Trust

ABSTRACT

The digital revolution of the twenty-first century has taken a turn with the rise of digital currencies. These are currencies digital in nature and set out to remove some of the problems that have plagued the fiat currency system providing ways to transfer funds across the globe at the lowest costs possible as it eliminates the long-standing necessity, “ the middle man”. As more and more countries across the globe have driven towards the adoption models have been put across with some opting for interoperability of cryptocurrencies alongside the already existent fiat system while other governments have seen that adopting a central bank digital currencies will be good for keeping both the benefits of the digital currencies and a sense of control over it. The exploration of the concept in Uganda’s case would also be important with this paper set out to find the validity of the need to shift towards this system and its possibility. The paper finds that indeed the advantages do exist with financial inclusion and poverty reduction being a clear advantage although some challenges still do exist like the infrastructure gaps, the low level of adoption of complementary technologies, high volatility of digital currencies is still a challenge with the need for the monetary policy tightening increasing the cost of operating the business and could limit financial inclusion.

CHAPTER ONE

1.1. Introduction

The evolution of money seems to have hit a new milestone with digital integration spearheading this shift. This has seen the introduction of cryptocurrencies and Central Bank Digital Currencies with the global economy applying various studies and models in order to fully utilize the capabilities of this technology in trade and the general economy. There is therefore need to understand whether this technology can be applied to and fully utilized in Uganda. This chapter will therefore give a background to this technology, the problem statement the conceptual framework that will be used to evaluate the adoption feasibility in the country.

1.2. Background

Evolution and innovation have been a key aspect of human progress in all fields of study. The financial sector has not been Alien to this wind of change, with current economies being the largest and most progressive in human history. In that light, the last seventy years have seen the development of financial innovations like the introduction of credit cards, automated teller machines, international payment systems like the Society for World Interbank Financial Telecommunication (SWIFT) with internet banking coming in around 1994 making the global economy more interconnected than ever before making it like a global Pangea once more.

Digital currencies have been the latest of these technological-financial innovations with cryptocurrencies and Central Bank Digital currencies being at the forefront of the discussions as the potential of its underlying technology to lead the way into the next stage of the development of the global economy.

So, what exactly are cryptocurrencies, according to Rejeb 2021, Cryptocurrencies are a new type of currency that is digital and produced by cryptographic algorithms exchanged across peer-to-peer networks Investopedia defines cryptocurrencies as a digital virtual currency secured by cryptography, which makes it nearly impossible to counterfeit or double spend. On the other hand, Forbes defines cryptocurrencies as a digital, encrypted, and decentralized medium of exchange. From the general definition across the board we can see that it is a digital asset, backed by cryptographic technology, and can't easily be counterfeited, but are they a form of money? Yes, they are, as Di Pietro (2020) defines cryptocurrencies as a medium of exchange offering

alternatives to traditional fiat currencies and have now been recognized as a medium of exchange among many financial players across the globe.

While the concept of digital currencies is not new being coined by David Chaum, the first majorly recognized cryptocurrency was Bitcoin in 2008 by the the infamous Satoshi Nakamoto. This gave room for the rise of several similar currencies among them Lite coin, Ethereum, and Dodge coin among others. The crypto currency market has grown to a total market capitalization of about 2.14 Trillion dollars which stands to rival the M0 money supply of 2.3 Trillion dollars. The astronomical rise in the valuation of this intangible asset class can be attributed to the trust and dynamic nature that have played a major factor in the adoption amongst its millions of users.

The dynamic nature of cryptocurrencies has unlocked a new financially diverse asset with the potential to be placed under several categories. This diversity can be seen in the number of applications that its users have been able to find in it. Although the concept of cryptocurrency came from the idea of making the global payment systems more efficient, (Nakamoto, 2008), it has for the greatest part of its existence been taken as a commodity being a form of digital gold. This can be seen with most users majorly trading and mining finite cryptocurrencies like Bitcoin with the hope that they could gain greater value over time and turn a profit. This has continued to date and should be expected to increase, especially with the recent interest of global funds like Blackrock entering the space with the creation of an exchange-traded fund tracking Bitcoin called iShare Bitcoin Trust IBIT. This trading activity has made cryptocurrencies one majorly volatile asset with the opportunity to create wealth and distort economies. However, this volatility has not deterred economies that think it could be a viable alternative to fiat currencies with several countries looking into the adoption of digital currencies with more centralized control in the form of Central Bank Digital currencies or the full adoption of an existent currency like Bitcoin especially in Low developed countries seeing that the adoption could boost the economy or act as a hedge against inflation. With these use cases, we can agree with Milutonovic (2018) who referred to cryptocurrencies as the biggest technological innovation in the last 10 years.

The greatest technological innovation of the last decade is a form of money that cannot be seen or felt in large contrast to the fiat we majorly have across the world, but the question arises, what is the true foundation of this technological innovation, the answer being, blockchain technology?

Blockchain technology is a decentralized digital ledger that uses encryption to secure and record data exchanges (Sadiku,2018; Ahmed,2018; C,2018: Nidhieaswar,2023) providing secure anatomy and data integrity. A simpler definition by M.Krichen 2022 puts it as a chain of blocks storing information with digital signatures in a distributed centralized network as adopted by cryptocurrencies. In layman's terms a decentralized distributed ledger system that records and verifies transactions.

The origin of this technology can be traced back to David Chaum's paper, 'Blind signatures for untraceable payments' (1983), which put out the concept of using cryptography to form an electronic cash payment system with the introduction of Digi-cash in 1990. This is said to be the foundation for the universally acknowledged 'Bitcoin: A Peer-to-Peer Electronic Cash System' by Satoshi Nakamoto. The technology first applied to Bitcoin has now become synonymous with cryptocurrencies and is starting to gain ground with applications, especially in streamlining finance with the execution of smart contracts advanced trading and investing, and digital identity management.

On the global level, the emergence of digital currencies and blockchain technology has given governments a thing or two to think about, the asset class has grown to 2.14 Trillion dollars approximately 2 percent of the M2 money supply as measured by Migue finance giving rise to speculation and volatility hedges and the newly set up Bitcoin exchange-traded fund like IBIT by Blackrock.

As for the adoption of digital currencies, 2 models are being pushed forward, with either going for an already-existent cryptocurrency or the development of a Central Bank Digital Currency (CBDC). On that note, the former, 2 countries have been known to have adopted cryptocurrencies El Salvador and the Central African Republic. However, this has been met with warnings from the international community as the volatility associated with the adoption could be detrimental to the economy's status.

Central bank digital currencies have however been applauded as they unlike cryptocurrencies have an intermediary that could regulate their flow into the economy, especially under circumstances that would involve mitigating economic shocks. Central bank digital currencies adopt the blockchain as its basis with the associated advantages like low transaction costs and fast speeds for completion while at the same time being controlled by the respective central banks. This has

boosted the government's interest in the subject of digital with the Atlantic Council reporting that 134 countries accounting for 98 percent of global GDP have seen interest in CBDCs with 3 having launched, 36 doing pilot testing, 30 in development, and 44 doing research. There have also been intercountry pilot tests done for example project Mbridge has combined up to 31 central banks and financial institutions to develop a multiple central bank digital currency which could be a basis for global trade in the years to come with the possibility of becoming the single global currency.

Where does the African continent stand amid all these developments? According to research by 'Making Finance Work for Africa', the adoption of cryptocurrencies has seen astronomical growth reporting a 1,200 percent increase in the adoption level among Africans between June 2020 to July 2021. This has been driven by the need to save against the high inflation in African countries a case in point being Ghana having a 29 percent inflation rate in 2022 made several Ghanaian citizens turn to digital gold and the ease of making cross-border transactions. The adoption rates have forced governments to take a stand some being against the move and coming out to place outright bans as Tunisia has done with others remaining neutral taking up research while taking a cautious approach or becoming cryptocurrency heavens just like South Africa where monetary innovations have come up like Peer-to-Peer lending and Nigeria coming being among the three countries in the world with a central bank digital currency the E-Naira. In general, the stance of the continent remains unclear with the lack of a regulatory framework and viable models of adoption that have led most banks to take cautious issuing warnings as this may open up economies to untraceable Ponzi schemes and illicit activities. This division on the matter is as Mulitonic 2018 put it that both sides do have valid reasons with the only thing being the significance of the impact on

In East Africa, there is a growing positivity towards the next stage of the digital revolution with President Samia Suluhu of Tanzania urging citizens to prepare for the use of cryptocurrencies. In Kenya, the adoption rate is quite high being ranked fifth globally with 8.5 percent of the population having adopted crypto currency. Citi Bank reported that the holding had reached about 2 percent of the total GDP with the largest digital monetary network MPESA has been incorporated into Binance fostering seamless transactions from fiat to peer-to-peer networks. This positive sentiment building on the East African block could lay the foundations for the ever-sought-after East African

Common currency the Sheafra whose release has been delayed due to disagreement among the different central banks.

Uganda similar to Kenya is not new to digital financial innovations with mobile money and agent banking linking up the economy and promoting financial inclusion and economic growth. However, on the note of the Cryptocurrencies, the government was initially skeptical issuing a warning to the public as well as financial institutions claiming that this would open up the economy to illicit financial schemes and market volatility that would affect the general public and in turn the economy. However, despite the warning, an article from Further Africa noted that trading volumes had averaged 50,000 to 60,000 dollars per month with Ugandan citizens taking up crypto mining and trading which has provided decent incomes to the participants with incomes expected to reach 5.4 million dollars by the end of 2024. According to Statista an online data platform, the current adoption rate has reached about 2 percent with that expected to more than double in 2024 reaching 4.41 percent. These developments and the positive sentiment from East African counterparts like Tanzania have caused a pivot in the view of the Bank of Uganda which has invited different stakeholders like the Blockchain Association Uganda to a regulatory sandbox that could be the first steps to setting up the foundations for the adoption of digital currencies in the country.

1.3. Problem Statement

Rejeb (2021) is quoted to have written that "Cryptocurrency signifies a shift away from traditional management and regulations of financial systems". The rise of digital currencies across the globe has led many to believe that the next stage of the evolution of money is at hand. This has seen global positive sentiment, especially with the advantages it carries in linking up the ever-growing global economy. This has fostered Uganda through its central bank to start research into different adoption mechanisms and the necessary regulations.

The era of digital currencies has come at a time when Uganda is on the road to achieving middle-income status with financial inclusion and economic growth being some of the key drivers. The adoption of a digital currency mechanism could therefore play a role in this as the projected incomes for users have provided a new opportunity for the citizens to earn a living. The possible impact of the volatility and decentralized assets has so far made the government take a cautious approach to the matter.

The evaluation of the available knowledge on the subject matter could therefore be a source of enlightenment bringing out how feasible the adoption of digital currencies as legal tender would be and the pros and cons of this move as the government aims to reach its goals of a middle-income status country in the near future.

Objectives of study

1.4. General Objective

To evaluate the possibility of the adoption of digital currencies as legal tender in Uganda. This is as the world slowly shifts to the adoption of cryptocurrencies that would need to meet the monetary and fiscal stability objectives of the central bank while being decentralized or the adoption of a Central Bank Digital Currencies that are regulated but still carry the advantages of the blockchain system.

1.4.1. Specific objectives

- i. To find out the possibilities of digital currencies evolving into legal tender.
- ii. To understand the regulatory framework that will need to be in place to accommodate the adoption of cryptocurrencies.
- iii. To understand the role of digital currencies could play in improving financial inclusion and economic development in the country.

1.4.2. Research questions

- i. Is it possible for digital currencies to evolve into legal tender
- ii. What is the required regulatory framework that will need to be in place to accommodate the adoption of cryptocurrencies?
- iii. What role can digital currencies play in improving financial inclusion and economic development in the country?

1.4.3. Research hypothesis

The hypothesis below were developed in order to guide in answering the research questions under study

Ho₁; there is a correlation between the level of inflation of a country and the value of its currency

Ho₂; there is a correlation between the level of inflation and the interest rate of the nation

1.5. Geographical scope

The study was carried out in Uganda with the focus being the impact on the general economy and the legal framework.

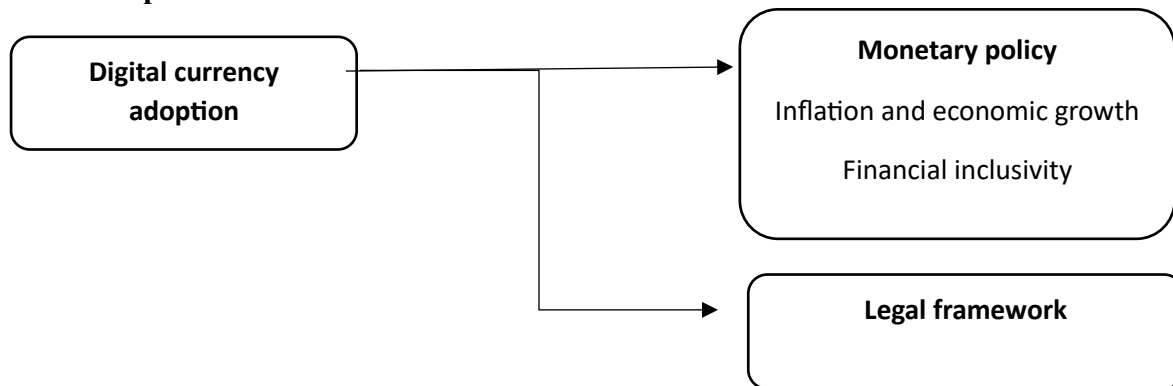
1.6. Significance of the study.

The study is set to benefit the following:

Government in providing a guide to the legislative process. The study will open up a new perspective in terms of the legislative framework that has so far proven to be difficult especially due to the decentralized approach to cryptocurrencies and the lack of proven models that could be regulated by the central bank to achieve the country's monetary objectives.

This research paper also will lay the foundations for alleviating public skepticism about the new financial innovation. This is because the skepticism that could hinder the adoption comes from the limited knowledge of the subject.

1.7. Conceptual Framework



The concept of the study is set to have Digital currency adoption as the dependent variable with Monetary policy having financial inclusivity, inflation, and economic growth as sub factors; and legal framework being the independent variables. This posits that for the adoption of cryptocurrency to be feasible the system will have to fulfill monetary and economic growth objectives of the economy while being steadily controlled through an established legal network.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter presents a thorough examination of the existing scholarly literature on the viability of adopting digital currencies in Uganda. The review addresses three specific aims: evaluating the potential for cryptocurrencies to become recognized as legal tender, identifying the necessary regulatory framework to facilitate the adoption of cryptocurrencies, and assessing the role digital currencies can play in enhancing financial inclusion and economic development within the country. The chapter synthesizes insights from a diverse array of academic sources, industry reports, and case studies to provide a comprehensive understanding of these critical issues.2.2

2.2. Empirical review

2.2.1. The feasibility of evolution to legal tender

The feasibility of digital currencies evolving into legal tender is a topic of growing interest. Research suggests that cryptocurrencies endorsed by central banks could provide more stability and potentially become legal tender (Salhout & Bechter, 2018). Achieving monetary stability may be the key to unlocking the economic potential of a country such as Uganda that has despite having a number of financial innovations has mostly remained a third-world nation riddled with inequalities as the current financial systems struggle to provide sustainable financial services to SMEs, with financial inaccessibility and the collapse of many SMEs. (Hussein,2021).

The acceptance level could be the first factor that influences the adoption as the legal medium of exchange. Klaus (2021), posits that the adoption of digital currencies would be highly probable for households. However, the adoption is influenced by perceived usefulness, trust, social influence, and ease of use, with awareness playing a mediating role (Almuraqab, 2020) with security and compatibility with existing practices being key factors in the process (Ioanna, 2019).

The long-term validity of digital currencies makes them need to be recognized as intangible property subject to financial regulations (Shao et al., 2013). This intangibility aspect does make users have concerns about the security levels with fraud and hacking being the main fears. Creation of awareness about the associated advantages of the adoption of cryptographic technology.

The security concerns over cryptocurrencies may be a hindrance as they have created an environment where one must balance between the associated security risks like fraud and convince

(Khan, 2020). Several security measures do exist for the protection of digital currency assets like public key cryptography, hashing, digital wallets the decentralization and consensus mechanisms together creating a robust secure environment (Paweł, 2023). Although the robust nature of digital currencies leaves no single point of failure open, they are still prone to bugs like user error (losing private keys) or sophisticated attacks to exploit vulnerabilities with losses being irretrievable (Erinle et al.,2023). This could result in increased skepticism, especially in contrast to the existing fiat system which has such risks at a much lower level on top of the digitally illiterate that would generally want to be risk averse avoiding the general idea of the adoption of this digital technology.

The scalability of the blockchain technology then comes into play a true adoption of the digital currency space in an economy would rely on the capability of all the stakeholders to use the technology. Scalability in digital currencies refers to a blockchain network's ability to handle increased transaction volumes and nodes efficiently (Pandey et al., 2021). It is a critical challenge for widespread blockchain adoption, encompassing throughput, storage, and networking aspects (Xie et al., 2019). Current blockchain systems face limitations in performance, storage capacity, and functional scalability (Xu et al., 2022). Various approaches have been proposed to address these issues, including sharding, on-chain and off-chain storage, off-chain payment channels, and cross-chain technology (Xu et al., 2022). Scale-out solutions like Sharding, Lightning Network, Ethereum Plasma, and Matic aim to improve network throughput as it grows (Pandey et al., 2021). However, improving scalability can affect other blockchain features, potentially compromising security and making the system vulnerable to attacks (Kohad et al., 2020). Researchers continue to explore innovative solutions to enhance blockchain scalability while maintaining its core benefits (Xie et al., 2019). While Africa's developed mobile money network and high mobile money penetration position it well for CBDC adoption, obstacles such as digital exclusion, poor infrastructure, and regulatory uncertainty need to be addressed (Mpofu, 2024).

Interoperability is another of the approaches in the drive to feasibly adopting digital currencies. The approach involves using digital currencies alongside the already existent financial system involving the use of fiat currency. Central bank digital currencies (CBDCs) are emerging as a response to the proliferation of private digital currencies, which pose potential risks to financial stability and monetary policy (Opore & Kim, 2020). Interoperability of CBDCs with existing financial infrastructure is a key consideration, with multi-CBDC (mCBDC) arrangements offering

potential benefits, particularly for emerging market economies (Auer et al., 2021). However, achieving these benefits requires the early incorporation of cross-border considerations in CBDC development and international coordination (Auer et al., 2021). A four-step framework has been proposed to facilitate discussions on payment system interoperation, including the coexistence of CBDCs and private digital currencies like stablecoins (Lawson & Herrada, 2022). This framework aims to help policymakers, technologists, and the public analyze the complexities of payment system interoperability in the context of emerging digital currencies (Lawson & Herrada, 2022). Overall, interoperability remains a crucial challenge in integrating digital currencies with existing financial infrastructure.

2.2.2. Regulatory framework.

Over the past decade, the rise of digital currencies, commonly known as cryptocurrencies, has presented policymakers and regulators with a unique challenge: how to create a legal framework that fosters innovation while also ensuring consumer protection and financial stability (Štrkolec, 2022) (Saiedi et al., 2020) (Kepli & Zuhuda, 2019) (Prendi et al., 2023). This paper examines the existing legal landscape surrounding digital currencies, highlighting the key considerations and emerging trends in their regulation.

The legal nature of digital currencies is a subject of ongoing debate and varies across jurisdictions. Some countries categorize them as commodities, while others view them as a form of virtual currency or even as a new asset class altogether (Gans, 2024). This diversity in classification necessitates a comprehensive regulatory approach that can accommodate different interpretations and uses of digital currencies, particularly in the context of taxation and consumer rights, as various nations are beginning to establish clearer guidelines to mitigate legal ambiguities surrounding these assets (Štrkolec, 2022).

One of the primary concerns surrounding digital currencies is their potential use in money laundering and other illicit activities. The rapid growth of cryptocurrency has drawn the attention of regulators who are tasked with developing robust frameworks to address the risks associated with their use in financial crimes, as these currencies can provide anonymity and facilitate complex transactions that are difficult to track, making it imperative for policymakers to strengthen anti-money laundering and know-your-customer regulations to ensure the integrity of the financial system (Silfversten et al., 2020) (Prendi et al., 2023).

There will have to be monetary policy changes and approaches with the adoption of digital currencies (Foster et al., 2021) (Brunnermeier et al., 2019) (Goodell et al., 2020). There is a need to carefully design policies to ensure the stability of the financial system and promote financial inclusivity (Pelagidis & Kostika, 2022). This will require evaluating the macroeconomic implications, accounting for risks to financial stability, and mitigating challenges to traditional banking models. It will also necessitate the development of innovative tools and mechanisms that allow for efficient clearing and settlement, enabling the integration of digital currencies into existing payment systems while maintaining robust oversight to manage systemic risks effectively (Goodell et al., 2020). This integrated approach must also consider the potential impacts on domestic and cross-border payments, as improved efficiency in these areas could lead to lower transaction costs and increased accessibility for consumers, particularly in developing regions where financial infrastructure may be lacking (Bizama et al., 2024). In addition, the interplay between digital currencies and the broader economic environment must be examined, as the advent of crypto assets could introduce new forms of competition among payment systems, possibly leading to an unbundling of traditional monetary roles and creating challenges for the existing international monetary system.

Regulations for cross-border capital flows and macroprudential policies will also need to be adapted to account for digital currencies, ensuring that their usage does not result in unforeseen disruptions to financial stability or the transmission of monetary policy (Pelagidis & Kostika, 2022) (Goodell et al., 2020). The regulatory framework must strike a balance between fostering innovation and safeguarding the integrity of the financial system, which will require close collaboration among national and international policymakers, central banks, and financial regulators. (Brunnermeier et al., 2019) (Goodell et al., 2020) to the unique characteristics of digital currencies and their integration into the existing monetary framework, which may necessitate redefining regulatory approaches to facilitate proper oversight and consumer protection. This approach will enable a comprehensive understanding of how digital currencies can coexist with traditional financial systems, ultimately ensuring that the benefits of financial innovation are realized without compromising stability or consumer trust in the monetary system (Pelagidis & Kostika, 2022)

2.2.3. Financial Inclusion

(Digital Financial Inclusion, 2023) Digital financial services can reach financially excluded and underserved populations with lower costs. by leveraging technologies that minimize transaction fees and enhance operational efficiencies, thus enabling individuals in remote or economically disadvantaged areas to access essential financial services more easily (Bizama et al., 2024).

Through the implementation of digital currencies, transaction fees could be significantly lowered, making remittances more affordable for individuals in developing regions, thus facilitating access to financial services that were previously unattainable for many underserved populations (Bizama et al., 2024). Moreover, the integration of mobile money and digital wallet systems can serve as vital conduits for delivering financial services to remote and rural communities, ensuring that these populations are not left behind in the transition towards a more inclusive financial landscape (Bizama et al., 2024). Furthermore, by incorporating features such as programmable payments and real-time transaction processing, digital currencies can enhance the functionality of financial services, ultimately leading to greater financial inclusion and efficiency in domestic and cross-border payments (Bizama et al., 2024). By improving the efficiency and security of transactions, digital currencies pave the way for greater financial participation among marginalized communities and facilitate smoother access to necessary financial resources (Bizama et al., 2024)

(Hashfi et al., 2020) Financial inclusion allows individuals to use formal financial services, such as depositing or lending money. by enabling previously unbanked individuals to establish financial identities and engage with the financial system in ways that were not possible before, empowering them to save, access credit, and invest in their futures (Kofman & Payne, 2021). This transition is particularly significant for women and individuals in rural areas, who have historically faced barriers to accessing traditional financial services, as digital platforms can provide them with the necessary tools to improve their economic standing and contribute to overall community development (Alexander & Karametaxas, 2021) (Kofman & Payne, 2021). By creating opportunities for individuals to build credit histories and access a broader array of financial products, digital currencies can promote economic empowerment and inclusivity, particularly among marginalized groups who have previously been excluded from the financial system (Widarwati et al., 2022). Additionally, digital currencies can facilitate the establishment of financial identities for previously unbanked individuals, thereby allowing them to engage with the

financial system in unprecedented ways, which in turn empowers them to save, access credit, and invest in their futures, particularly benefiting women and rural populations who have faced systemic exclusion from traditional financial services.

This shift not only helps to democratize access to essential financial tools but also reduces the reliance on informal lending practices that can exploit vulnerable populations, thereby supporting sustainable economic growth and stability within underserved communities (Alexander & Karametaxas, 2021). Furthermore, the proliferation of digital currencies can enhance the delivery of financial products tailored to the specific needs of individuals, including customized savings plans and insurance options, ultimately fostering a more resilient economic environment for those previously excluded from formal financial systems. Moreover, digital currencies have the potential to revolutionize the way financial products are delivered, offering tailored solutions that meet the unique needs of individuals and communities, thus fostering resilience and adaptability in their financial practices, ultimately supported by the advancements seen in digital financial technologies.

(Kofman & Payne, 2021) Digital financial services have the potential to lift women, their families, and communities out of poverty. by providing them with greater control over their finances and facilitating their entry into the financial system, which can lead to improved economic stability and empowerment for individuals who have been historically marginalized. This empowerment is particularly transformative for women, who often bear the brunt of financial exclusion and have traditionally been restricted in their economic activities; thus, by offering them the means to manage their own money securely and effectively, digital financial services can potentially alter the course of their lives and those of their families and communities (Kofman & Payne, 2021). This transformative potential is underscored by the capacity of digital financial services to provide unprecedented access to resources, enabling women to break away from cycles of poverty and dependency, which is crucial in contexts where traditional financial systems have consistently failed to meet their needs. Furthermore, the convenience and flexibility afforded by digital financial services can free up women's time, allowing them to pursue other productive endeavors and actively contribute to the economic development of their communities. (Alexander & Karametaxas, 2021) (Kofman & Payne, 2021) (Responsible Digital Payments: How to Prioritize Women for Financial Equality and Inclusive Economies, 2023) (Borgonovi et al., 2018).

Additionally, this empowerment allows women to engage in entrepreneurial activities, thereby enhancing their ability to generate income and contribute to their families and local economies, which is especially critical in regions where economic opportunities for women are limited due to structural barriers (Responsible Digital Payments: How to Prioritize Women for Financial Equality and Inclusive Economies, 2023) (Kofman & Payne, 2021). Moreover, as digital financial services become more integrated into daily life, they can further enhance women's financial literacy and confidence, equipping them with the skills necessary to navigate and leverage financial opportunities effectively, ultimately fostering a more inclusive economic environment that benefits entire communities.

2.3. Literature gaps

2.3.1 Legal Tender Feasibility:

While there has been some examination of the potential for cryptocurrencies to be recognized as legal tender, the existing literature lacks a sufficient focus on how central bank digital currencies specifically could function as legal tender in Uganda, particularly in comparison to private digital currencies. Additionally, there is a need for a comprehensive analysis of the regulatory frameworks that could enable or impede the adoption of CBDCs as legal tender, especially considering the unique economic dynamics and challenges faced by developing countries like Uganda, where issues such as payment costs are significant. Furthermore, there is a discernible gap regarding the implications of adopting CBDCs on the existing financial architecture, especially in terms of enhancing financial inclusion and addressing the transactional inefficiencies prevalent in domestic and cross-border payments within the region (Bizama et al., 2024). Moreover, it is essential to explore the design choices and technical considerations that central banks must navigate in their pursuit of CBDC implementation, as these factors are critical to ensuring the successful deployment and integration of such systems within the country's financial landscape, ultimately influencing their potential to be recognized as legal tender (Foster et al., 2021) (Allen et al., 2020) (Opore & Kim, 2020) (Bizama et al., 2024).

The existing academic literature has yet to thoroughly investigate the cultural and social obstacles that may hinder the adoption of digital currencies as legal tender in Uganda, especially in rural regions with constrained digital proficiency. Moreover, understanding these obstacles is crucial, as cultural perceptions of money and trust in digital systems can significantly influence user

acceptance and the broader socio-economic impacts of such financial innovations, particularly in contexts where traditional banking infrastructure is limited or absent (Foster et al., 2021). Additionally, the interplay between local financial ecosystems and emerging digital currencies warrants further exploration, particularly how the unique characteristics of Uganda's economy could affect the development and scalability of CBDCs, thereby impacting their acceptance and effectiveness as legal tender in enhancing financial inclusion.

The current academic literature tends to adopt a broad, generalized perspective on the regulatory requirements for digital currencies, without sufficiently accounting for the distinct economic, technological, and societal conditions present in the Ugandan context. Notably, there is a dearth of localized studies that concentrate on the specific regulatory challenges that Uganda may face in this domain. As such, future research should aim to develop tailored regulatory frameworks that address these unique challenges, considering factors such as the current legal landscape, existing financial infrastructures, and the socio-economic realities of the Ugandan populace, which can significantly influence the adoption and efficacy of digital currencies as legal tender.

There is a gap in the exploration of how Uganda could participate in or be affected by regional and global regulatory frameworks for digital currencies, particularly in the context of East Africa. While the literature discusses international coordination, it lacks a detailed examination of the specific implications and potential challenges Uganda may face in navigating these broader regulatory landscapes. Such coordination is essential for ensuring that Uganda's regulatory approach is not only compliant with international standards but also adaptable to the unique local conditions that characterize its financial ecosystem, thereby enhancing the prospects for effective integration of digital currencies into the national economy while mitigating risks associated with their adoption as legal tender.

2.3.2. Security and Scalability:

The existing academic literature has not sufficiently explored strategies for educating users about the security risks associated with digital currencies, an area of critical importance in the Ugandan context where digital literacy levels are relatively low. These educational initiatives could help mitigate the risks of fraud and cyberattacks, thereby fostering a more secure environment for digital currency adoption and enhancing user confidence, especially among populations who may be unfamiliar with these technologies (Crypto Assets and Central Bank Digital Currencies:

Potential Implications for Developing Countries, 2023). Additionally, the implications of regulatory challenges on security measures and user awareness must also be addressed, as understanding these dynamics is vital for creating a resilient framework that promotes the responsible use of digital currencies in Uganda, particularly among vulnerable populations who may be disproportionately affected by

The existing academic literature has not adequately addressed how scalability challenges for digital currencies may manifest in the specific context of a developing country like Uganda, where infrastructure limitations are more pronounced. These challenges include issues related to internet connectivity, access to digital devices, and the ability of financial institutions to support a surge in digital transactions, all of which can impede the widespread adoption of CBDCs and other digital currencies in the country (Foster et al., 2021).

Although interoperability is recognized as essential, the existing academic literature lacks detailed case studies or practical examples demonstrating how Uganda could implement interoperable systems between digital currencies and the country's existing financial infrastructure. These examples would be invaluable for policymakers and financial institutions in understanding the potential pathways for integration, as successful interoperability can enhance user experience, reduce costs, and significantly improve financial inclusion by allowing seamless transactions across different platforms and services within the region, ensuring that marginalized

The existing literature explores the potential for digital currencies to improve financial inclusion but lacks empirical investigations into how these technologies could specifically benefit marginalized populations in Uganda, such as women, rural communities, and the unbanked. Additionally, there is a dearth of research examining the long-term socioeconomic implications of digital currency adoption, particularly in terms of sustainable economic development within the Ugandan context. and addressing these gaps in the literature could provide valuable insights into how digital currencies can be tailored to meet the needs of these specific groups, ultimately contributing to a more inclusive financial system that supports sustainable development goals in Uganda (Foster et al., 2021) (Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals? 2022).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter entails the research methodology that will be used to study the Feasibility of adopting digital currencies in Uganda. The research design will outline the research design, data collection methods, data analysis techniques, and ethical considerations employed in the study. The methodology aims to provide a comprehensive analysis to cover the specific research objectives as seen fit.

3.2. Research Design

This study adopted a quantitative research design to give a well-rounded view of the feasibility of the adoption of digital currencies in Uganda. The research primarily used quantitative analysis and approaches as they were the most appropriate to bring to light the comparative and specific attributes of the problem. Quantitative data was gathered through secondary sources, such as economic reports, financial statements, and industry statistics, to assess key economic indicators like inflation rates, user penetration, and market efficiency. The use of this qualitative research approach ensures a well-rounded analysis that will provide insights into how stable the cryptocurrencies are for use in Economies like Uganda shedding light on the possibilities of interoperability of the use of digital currencies with the available financial infrastructure or the full adoption possibilities helping to answer the question on the feasibility of adopting the technology.

3.3. Data Sources

The data collection for this research was secondary collected from sources such as economic reports, financial statements, and industry statistics. A comparative view on matters like volatility levels, inflation rates, and earnings in order to provide insights on the matter being the topic of discussion being obtained from the data in these respective sources.

The data variables on which data was collected are the Gross Domestic Product, Inflation rates, and the value of different currencies.

The sources of the data shall include: The Uganda Bureau of Statistics, Trading economics.com and Trading view

3.4. Data Analysis

The data analysis of this research employed a combination quantitative analysis techniques in order to compare the variables available in Uganda and those in El Salvador that adopted Bitcoin. The techniques the data collected was subject to are; data tables that will aid in providing a summary of the data that was compared in the two countries, trend analysis with a descriptive graph showing trends in the variables before and after the adoption of digital currencies, and those of Uganda that has not adopted throughout study, correlation analysis was done to uncover relationships between variables in Ugandan economy and the progression of digital currencies. The integration of these analytical approaches will yield a comprehensive understanding of digital currencies and their potential for adoption as legal tender in the Ugandan context.

3.5. Ethical Considerations

This study employed an objective and autonomous approach to evaluating digital currencies, intentionally avoiding undue influence from financial institutions, government entities, or proponents of digital currency systems. Furthermore, the research process maintained transparency through the open disclosure of all potential conflicts of interest.

In the context of Uganda, this study acknowledged the potentially significant socioeconomic effects of digital currencies. The study method carefully considered the social and economic effects of implementing digital money systems while keeping in mind Uganda's unique economic situation. Extra caution was exercised to prevent the imposition of any external biases or assumptions that might distort the local situation.

3.6. Limitations of The Study

The study relies on secondary data sources such as economic reports and financial statements, which may vary in accuracy and timeliness. The availability and quality of these sources could affect the reliability of the findings.

The study focuses on specific economic indicators and user perceptions, which may not encompass all aspects of digital currency adoption, such as regulatory challenges or long-term economic impacts.

The findings is specific to the Ugandan context and may not be easily applicable to other countries with different economic conditions or financial infrastructures.

The study could not account for long-term trends or changes in the digital currency market, limiting its ability to accurately predict future feasibility. This is because the use of a correlation analysis used in this study could not account for .

3.7. Conclusion

This chapter outlines the research methodology utilized to examine the viability of adopting digital currencies in Uganda. The study employed a mixed methods approach, integrating quantitative data from economic reports and surveys with qualitative insights gathered through interviews and focus groups. The data collection and analysis procedures, including triangulation methods, were described in detail to ensure the robustness of the findings. Additionally, the limitations of the study were acknowledged, such as the potential biases stemming from the focus on existing cryptocurrency users. Overall, Chapter 3 presents a clear analytical framework for evaluating the prospects of adopting this emerging financial technology.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.1. Introduction

This chapter provides information on the data obtained to answer the question of the feasibility of the adoption of digital currencies in Uganda. A case study of El Salvador is used to create a comparison between the states of the nations one having adopted cryptocurrency and Uganda having not adopted the technology.

4.2. Population demography

Source: Secondary data

The population demography will help us understand the distribution of the population. The total population for the two countries Uganda and El Salvador is 49.9 million and 6.34 million respectively with Uganda having 49.56 percent being male and 50.44 being female while El Salvador has 47.6 percent being male and 52.4 percent being female. This distribution clearly shows that the female make up the majority of the Population in Both cases.

Table 4.1. Population demography for Uganda

Population demography			
Country	Population	male	female
Uganda	49,924,252	49.56%	50.44%
El Salvador	6,342,299	47.6%	52.4%

The cryptocurrency penetration rate is the percentage of the population that has access to and handles digital currencies. Uganda has 0.41 percent of the population in use, while El Salvador has about 12 percent. The data also finds that the number of smartphone users stands at about 33.4 percent and 80 percent in Uganda and El Salvador, respectively. The internet is also seen to be accessed by about 27 percent of the population in Uganda and 71 percent of the population in El Salvador.

These first three indicators are important as digital currencies do require access to the internet for easy access a great number of users are willing to use the currency in day-to-day transactions and

the smartphone is what makes the digital currency portable facilitating transactions between individuals.

The levels of these three indicators do show low levels of significant technological gaps that would hinder the adoption of digital currencies with its limiting factors.

From the data, we can also observe that alternative mobile money facilitating mobile transactions in Uganda has 85 percent of the population in use.

Table 4.2. The level of digital currency penetration and use of complementary technology

	Uganda	El Salvador
Cryptocurrency penetration rates	0.41%	12%
Smartphone penetration rate	33.40%	80%
internet access	27%	71.7%
mobile money users	85%	N/A

From the table, we can see that El Salvador has a higher adoption rate of digital currency as its government lawyered its use in day-to-day transactions and payment of debts on the other hand Uganda has a low level of adoption as an alternative use technologies like Mobile money exist to facilitate transactions among a bigger percentage of the population as the technological gaps do hamper the adoption rates in Uganda.

4.3. The economic growth rates

Sources: Secondary data (Trading economics.com)

The value of the gross domestic product of Uganda rose over the 5 years from 33.35 billion in 2019 to 49.27 billion in 2023. El Salvador initially saw 24.92 billion from 26.88 billion rising to 34.02 billion by the end of the year. It can be noted that the growth in El Salvador’s GDP started again in 2021 after the adoption of Bitcoin as legal tender on 7th September 2021.

Table 4.3. The Gross Domestic product

Gross Domestic Product		
Year	Uganda (Billions of dollars)	El Salvador (Billions of dollars)
2019	33.35	26.88
2020	37.6	24.92
2021	40.53	29.04
2022	45.57	31.99
2023	49.27	34.02

This change in growth rate is illustrated in the Graph below with El Salvador coming from a decline in growth in 2020 and the growth of 2021 later slowing down with a similar path to that of Uganda. This could indicate that the adoption of digital currency did boost the El Salvadoran economy and stabilized the growth now having a similar growth rate as Uganda. In a sense, this could indicate that the adoption of digital currencies by Uganda could possibly boost the economic capabilities of Uganda which has had minimal significant growth levels in the country, and aid financial inclusion.

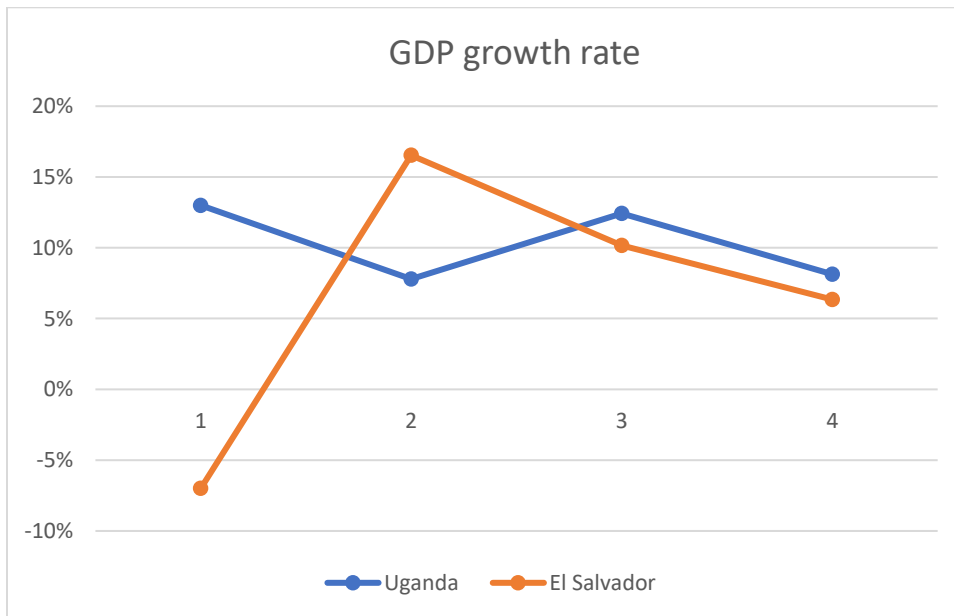


Figure 4.1. The Gross Domestic Product growth rate

4.4. Inflation rate

Source: Secondary data

The inflation rates of the two countries El Salvador and Uganda have remained mostly stable with Uganda having periods of high inflation between September 2022 and March 2023 later lowering to 3.3 percent in March 2024, on the other hand, the inflation rates of El Salvador show a case where the inflation problem has been managed well with minimal growth in the inflation rates between December 2021 and September 2022 where inflation rose from 6.11 percent to a high of 7.490 percent and has fallen to a low of 0.77percent.

This level of control of inflation shows that the inflation story after the adoption of volatile digital currencies can be managed with the proper monetary policy and standards set in place to manage the overall control of digital currencies.

Table 4.4. The inflation rates for Uganda and El Salvador

Month	Uganda	El Salvador
Sep-21	2.2%	4.966%
Dec-21	2.9%	6.110%
Mar-22	3.7%	6.690%
Jun-22	6.8%	7.760%
Sep-22	10.0%	7.490%
Dec-22	10.2%	7.360%
Mar-23	9.0%	6.060%
Jun-23	4.9%	3.784%
Sep-23	2.7%	3.019%
Dec-23	2.6%	1.229%
Mar-24	3.3%	0.770%

4.5. The value of currencies

Sources: Secondary data

In Uganda, the exchange rate of the US dollar to the shilling is used while for El Salvador, since the country set a fixed exchange rate and also adopted the dollar as legal tender, it stands reasonable

to use the exchange rate of the Bitcoin to the United States dollar. Besides Bitcoin is the most widely used crypto currency adding to its relevance in the study.

Table 4.5. The value of the currencies

Month	BTCUSD	USDUGX
Sep-21	43834.00	3541.10
Dec-21	46214.00	3539.30
Mar-22	45517.00	3585.50
Jun-22	19925.00	3754.40
Sep-22	19425.00	3851.30
Dec-22	16528.00	3708.60
Mar-23	28476.00	3736.50
Jun-23	30469.00	3662.10
Sep-23	26966.00	3751.20
Dec-23	42258.00	3777.20
Mar-24	71285.00	3880.00

From the data tables presented we can note that the Uganda shilling maintained most of its value over the entire period starting September 2021 to March 2024 on the other hand bitcoin did have a lot of volatility losing 62 percent of its value by December 2022 later rising to a level 63 percent higher than the at the apoptin of its adoption in El Salvador in September 2021. This high level of volatility of Bitcoin makes Bitcoin an economic risk to the economy as it could have adverse effects like hyperinflation and disequilibrium of the balance of payment of the nation.

Table 4.6. The volatility for the currencies

Month	BTCUSD	USDUGX
Sep-21	43834	3541.1
Dec-21	5%	-0.1%
Mar-22	4%	1.3%
Jun-22	-55%	5.9%
Sep-22	-56%	8.3%

Dec-22	-62%	4.3%
Mar-23	-35%	5.3%
Jun-23	-30%	3.2%
Sep-23	-38%	5.7%
Dec-23	-4%	6.3%
Mar-24	63%	9.0%

Source: Secondary data

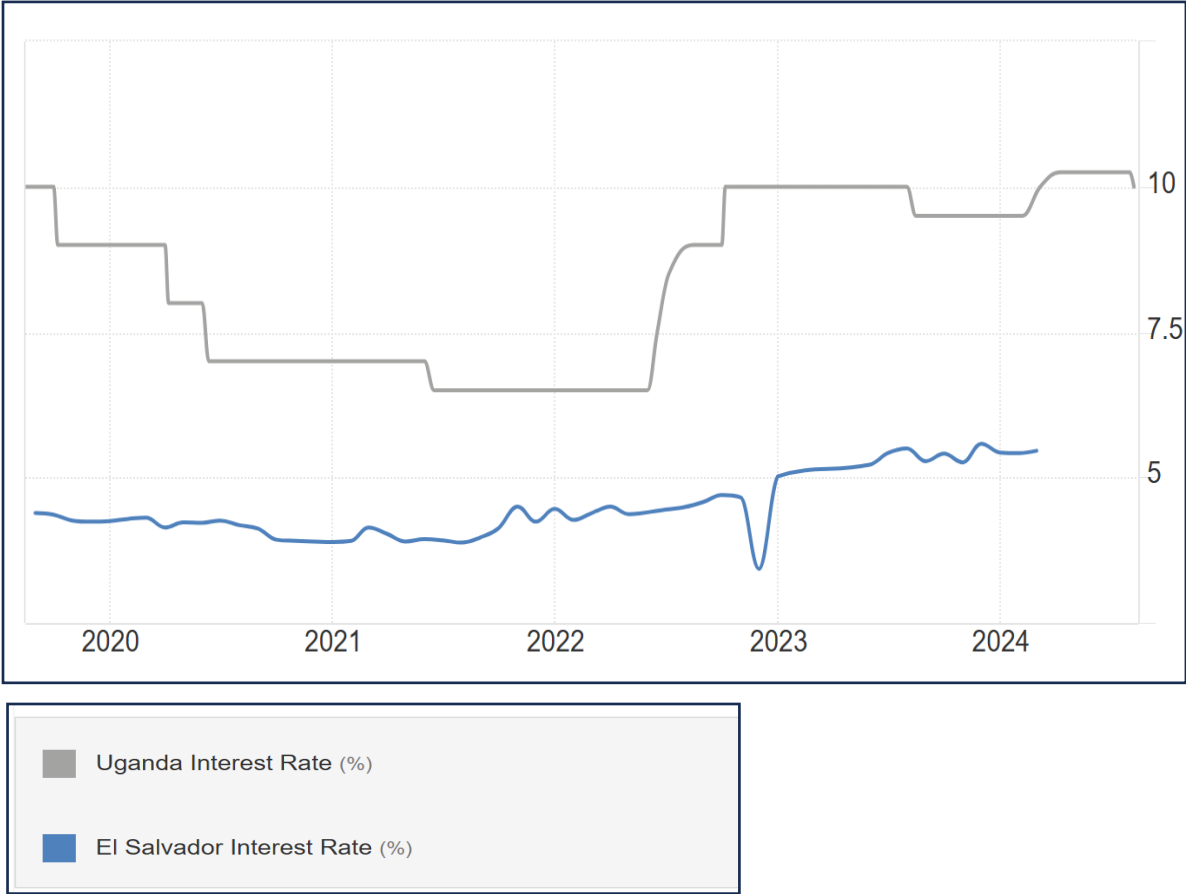


Figure 2: The Central Bank rates

The relevant monetary policy structure would be needed in order to adopt and manage the volatility and the associated issues when a digital currency is adopted. In the chart above we can see that before the adoption the interest rates were relatively low and stable however, after the adoption of Bitcoin in September 2021, the central bank has had to steadily increase its tightening on the economy with an already rise in the level of interest rates being charged. In the case of Uganda,

the Central Bank had to increase and keep interest rates high in order to cope with the inflationary shocks of late 2022.

Correlations

		BTCUSD	Inflation El Salvador
BTCUSD	Pearson Correlation	1	-.646*
	Sig. (2-tailed)		.032
	N	11	11
Inflation El Salvador	Pearson Correlation	-.646*	1
	Sig. (2-tailed)	.032	
	N	11	11

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 3: Source Secondary data

The significance level in figure 3 is at 0.032 which is less than 0.05 indicating that the correlation is significant, we accept null hypothesis 1, H_{01} and concluded that there is a correlation between the inflation and the value of the currency in El Salvador

Correlations

		UGXUSD	Inflation Uganda
UGXUSD	Pearson Correlation	1	-.398
	Sig. (2-tailed)		.226
	N	11	11
Inflation Uganda	Pearson Correlation	-.398	1
	Sig. (2-tailed)	.226	
	N	11	11

Figure 4: Source Secondary data

The level of significance in figure 4 is 0.226 which is high. The null hypothesis, H_{01} not accepted as there is no significant correlation between inflation and the value of the Uganda shilling.

Correlations

		Inflation El Salvador	El Salvador interest rate
Inflation El Salvador	Pearson Correlation	1	-.703*
	Sig. (2-tailed)		.016
	N	11	11

El Salvador interest rate	Pearson Correlation	-.703*	1
	Sig. (2-tailed)	.016	
	N	11	11

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 5: Source: Secondary data

The level of significance in figure 5 is at 0.016 which is less than 0.05 and hence correlation is significant. The null hypothesis, H_0 is accepted indicating that there is a correlation between the level of inflation and the interest rate in the nation El Salvador.

Correlations

		Inflation Uganda	Uganda interest rate
Inflation Uganda	Pearson Correlation	1	.392
	Sig. (2-tailed)		.233
	N	11	11
Uganda interest rate	Pearson Correlation	.392	1
	Sig. (2-tailed)	.233	
	N	11	11

Figure 6: Source: secondary data

The level of significance in figure 6 is 0.392 which is quite high indicating that the correlation is insignificant therefore the null hypothesis H_0 is not accepted as the correlation between the level of inflation in Uganda and the interest rate is insignificant.

From looking at the different correlation statistics, the data does show that The pair BTCUSD has a high negative correlation with the level of inflation, this makes the case for the store of value since the pair has risen in value over the period study. However, the negative relationship between inflation and interest rate does illustrate the cost of dealing with inflation as a strict monetary policy had to be introduced to deal with inflation. As for the case of Uganda, the insignificance of the correlation between inflation and the value of Uganda's currency indicating that it is not the only factor that would influence the level of inflation and therefore the growth, although this has still been met with high interest rates as the lowering value of the shilling has been met with ever higher interest rates to deal with the inflation. This significance between the

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

5.1. Introduction

This chapter provides a concise summary and discussion of the key findings, concluding remarks, and recommendations derived from the study. The analysis explored the viability of adopting digital currencies within the Ugandan context. The summary highlights the insights gained about the research questions the study sought to address. The summary is aligned with the conclusion, which is grounded in the study's findings and followed by a set of recommendations for future consideration.

5.2. Summary of finding

The data shows that Uganda has gaps in the adoption rate of the required complementary technology to facilitate the adoption of digital currencies. Successful adoption depends on the capabilities of the nation in terms of the available technology. From the findings, we find that with a standing population of 49 million people, only about 33.34 percent possess a smartphone which is essential for the transactions between individuals as they can easily be carried around facilitating the component of portability. These constraints mean that Uganda would be better off improving the financial services provided through mobile money reducing the sending rates to rip the full potential of the existing financial system. This is line with the findings of (Xu et al., 2022) that show that the adoption of blockchain technology will require a s number of upgrades to the available technology.

The unrealistic expectations of interoperability. The model pushed forward for the adoption of digital currencies in El Salvador entails the use of Bitcoin along with the existing financial service infrastructure. This however has still yielded relatively low adoption rates with a mere 20 percent of the population actively using digital currencies. This low adoption rate comes despite the higher levels of internet access and financial and digital literacy relative to that of Uganda. This highlights the problems associated with the full adoption in Uganda as the process will only put strain on the economy which contrasts the view of (Auer et al., 2021) that the application would have major benefits for upcoming markets as the strain could possibly slow down the economy.

The impact of volatility on the store for value. Digital currencies like Bitcoin are expected to act as a store for value, the excessive volatility has seen the digital currency lose more than three-

quarters of its value from its beginning. This would indicate that the poor who were intended to benefit from the financial inclusion as the loss in the value of digital currencies would only result in higher lower general earnings from sales in the international market. This cost will discredit the gains and technological leverage mentioned by Bizama (2024) with the potential gains from the lower transaction costs are lost to the raging volatility.

The Impact of monetary policy. As reviewed in Chapter Two the regulations are in the form of monetary policy tools. From the data obtained, we can see that El Salvador was forced to take on an increasingly restrictive monetary policy in order to combat the inflation problem which, in Uganda's case has been forecasted to rise as the digital currencies are introduced into the economy. This would result in increasing the already high interest rates of the nation, currently at 10 percent to even greater levels. This expected restrictive monetary policy would only serve to limit the economic growth of the nation as the cost of capital will be higher limiting the ability of small-scale institutions to expand and would negatively impact financial inclusion. There is a need to carefully design policies to ensure the stability of the financial system and promote financial inclusivity as in line with the study of (Pelagidis & Kostika, 2022).

5.3. Conclusion

The null hypothesis that the adoption of digital currencies in Uganda would not be feasible is accepted. The use of cryptographic technology does carry advantages to economic growth and financial inclusion, but the technological gaps, policy shortfall, and the volatile value of digital currencies do make the adoption of digital currencies unrealistically positive in Uganda's case. Besides, the current fiat monetary system does address most of the goals with the managed inflation case of Uganda not necessarily needing an alternative store of value for the nation and the presence of mobile money that covers 85 percent of the entire population can easily be scaled, new financial products adopted and the cost of transactions reduced to gain the advantages being offered by the digital currencies. It should be noted that despite the challenges being faced in the current state of digital currency adoption do not explicitly discredit the idea of adoption as its potential to boost trade for the nation with easy border transactions being one of the areas that the digital currencies do hold a greater advantage which can boost the capabilities of small scale

institution and individuals set to rip the gains of from the increased trade and could potentially improve the state of financial inclusion and economic growth

5.4. Recommendations

As the global financial landscape continues to evolve, the adoption of digital currencies has become a topic of increasing interest and importance, particularly in developing economies like Uganda. The country has embarked on a series of financial reforms to strengthen its financial system, including the liberalization of the capital account in 1997. (Kasekende, 2001) However, this process has also presented significant challenges, such as the need for more effective supervision and regulation of financial institutions (Kasekende, 2001). In this context, the potential role of digital currencies in advancing economic development and addressing some of the existing challenges in Uganda's financial sector warrants careful examination.

One of the key considerations in the adoption of digital currencies in Uganda is the need to address the risks associated with a liberalized economy. The article on "Capital Account Liberalisation: The Ugandan Experience" highlights the challenges posed by increased private capital flows, including the need for stronger regulation and supervision of financial institutions, as well as the development of market-friendly instruments to manage the increasing risks (Kasekende, 2001). In this regard, digital currencies could potentially offer a more transparent and secure alternative for cross-border transactions and financial intermediation, thereby contributing to the stability of the financial system.

Moreover, the paper on "Cryptocurrency in Africa: Alternative Opportunities for Advancing the Sustainable Development Goals?" suggests that digital currencies have the potential to improve economic participation, agency, and resilience of people, as well as facilitate cross-border trade. These benefits could be particularly relevant for Uganda, where the transition from a shared role in regulating and licensing financial institutions between the Ministry of Finance and the Central Bank has presented challenges. (Kasekende, 2007)

To effectively leverage the potential of digital currencies in Uganda, policymakers should consider strengthening the regulatory and supervisory frameworks to address the risks associated with this new technology. This may involve enhancing reporting requirements, data collection systems, and the development of market-friendly instruments to manage the increasing risks in a liberalized economy. (Kasekende, 2001)

Reducing the technological infrastructure gap in Uganda could be a key factor in making the adoption of digital currencies more feasible. The experience of Uganda in implementing reforms in both the commercial and central banking segments of the financial system, as highlighted in the "Plenary Session on Financial Services and Economic Development in Africa" paper, provides valuable lessons for countries embarking on similar efforts. By addressing the challenges of effective supervision and regulation, as well as the digital divide, Uganda can potentially harness the benefits of digital currencies to support sustainable development and economic growth.

5.5. Research gaps

Further research is needed to examine the cybersecurity risks and explore frameworks for mitigating fraud and safeguarding consumer protection within a digital currency ecosystem in Uganda.

Research on the environmental impact of digital currencies in Uganda, focusing on their energy consumption and alignment with the country's sustainability objectives. Investigate sustainable alternatives and mitigation strategies to address any adverse environmental effects.

Limited research exists on how Ugandans perceive digital currencies, particularly in terms of trust, security, and understanding. Potential research could involve conducting surveys or focus groups to assess public knowledge, attitudes, and trust toward digital currencies, which could inform educational campaigns and policy design.

Despite the recognized low smartphone adoption in Uganda, in-depth studies on the specific impediments to technological uptake remain scarce. Examining the infrastructural, economic, and social barriers to enhancing smartphone and internet penetration, as well as how these factors shape the potential for digital currency adoption, could yield valuable insights.

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