**FACTORS INFLUENCING THE INTENTION TO ADOPT CRYPTOCURRENCIES IN TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION**

**DEPARTMENT OF ACCOUNTING AND FINANCE**

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**2024**

# CERTIFICATION

The undersigned certifies that he has read and hereby recommend for acceptance by the Open University of Tanzania a dissertation titled **“Factors Influencing the intention to adopt crypto currencies in Tanzania”** in partial fulfillment of the requirements for the award of Master of Business Administration of the Open University of Tanzania.

……………………………………

Dr. Asha Katamba

(Supervisor)

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## Signature

…………..…………………….

Date

# 

# DEDICATION

This work is dedicated to my wife and my children. May this work encourage them to value education and hard work in their life.

# ACKNOWLEDGEMENTS

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# ABSTRACT

Cryptocurrency as a digital cashless system has been perceived to accomplish numerous roles including instant international money transfer, making transactions at low charges, online payments, alternative source of currency, and as a speculative business. Moreover, the decentralized and anonymous feature enable it to give freedom and confidentiality of its users. This study aimed to examine factors that impact the intention to adopt cryptocurrencies in Tanzania. The conceptual framework in which hypotheses have been proposed based on Technology Acceptance model (TAM). The study was based on quantitative design approach and data were collected via questionnaire from 368 Dar es Salaam citizens. Findings indicated that the perceived usefulness and the perceived ease of use showed positive association on the intention to use cryptocurrencies. On the contrary, the perceived challenges and risks were insignificant to both the perceived usefulness and the perceived ease of using cryptocurrencies. The study concludes that cryptocurrencies such as Bitcoin can be used in Tanzania to fulfill various roles. Furthermore, the study concludes that security gaps, risks and challenges are among the factors that hinders cryptocurrencies from being used as a legal tender in Tanzania. The study recommends to the government of Tanzania to consider establishing a syllabus on blockchain technology particularly cryptocurrencies in all levels of college and higher education. This will provide a wider understanding of this technology. Also, central bank should review the Tanzania monetary policy in order to accommodate new financial technologies including cryptocurrencies.

**Keywords**: *Cryptocurrency, Adoption, Tanzania*

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# LIST OF ABBREVIATIONS

|  |  |
| --- | --- |
| BOT | Bank of Tanzania |
| BTC  CMC | Bitcoin  Coin Market Capitalization |
| COSTECH | Tanzania Commission for Science and Technology |
| DIT | Dar es Salaam Institute of Technology |
| DUCE | Dar es Salaam University college of Education |
| ETH | Ethereum |
| FinCEN | Financial Crimes Enforcement Network |
| Fintech | Financial technology |
| IBM | International Business Machines |
| MAS | Monetary Authority of Singapore |
| NYDFS | New York State Department of Financial Services |
| SPSS | Statistical Package for the Social Science |
| TAM | Technology Acceptance Model |
| TSH | Tanzanian Shilling |
| TTCL | Tanzania Telecommunication Corporation |
| USA | United States of America |
| USD | United States Dollar |

# CHAPTER ONE

# INTRODUCTION

## Overview

## This chapter reports background information, statement of research problem, research objectives, research questions, significance of the study, and scope of the study and the organization of the study.

## 

## Background to the Study

The twenty-first century, sometimes referred to as the "century of the digital economy," has seen tremendous technological innovation. Since switching from using fiat money to electronic, digital, and virtual currencies, the financial industry has undergone significant technological advancements. In Tanzania, there has been improvement in the financial inclusion of both rural and urban residents. In order to reach the unreached, financial service providers like banks and mobile money agents have expanded their offerings.

Blockchain technology known as cryptocurrency is built on a peer-to-peer decentralized cashless system that enables payments to be exchanged instantly over the internet between peers (Lee & Chuen, 2015). Numerous academics' studies (Ablyazov & Petrov, 2019; Nadeem *et al.,* 2021) found that cryptocurrencies are a quick and inexpensive way to send money internationally. They are also useful for online payments and save time. After Satoshi Nakamoto published a whitepaper on Bitcoin in 2008, the first cryptocurrency was launched in 2009 and is known as Bitcoin (Helleiner, 2011; Luther, 2016). Scardovi (2000) asserts that cryptocurrencies and other digital financial technologies will upend the current international economic structures.

Because they perceive cryptocurrencies as the money of the future, with daily value gains and the potential to grant people financial independence, investors are drawn to them (Buker, 2021). This is due to the fact that Aslan (2021)'s study on the financial economics of the cryptocurrency market found that the rapidly advancing digital technology is driving a shift in the finance industry. Over 9300 new cryptocurrencies have been spotted worldwide as Bitcoin's popularity has grown (CoinMarketCap, 2021a). Coins owned by the government and privately are included in this total.

However, the study done by Dong *He et al.* (2016) found that cryptocurrencies came with significant risks of being a gateway for money launders, tax escapers, terrorist financers, and fraud. According to Ng & Griffin (2018) the risks of cryptocurrencies to the central bank include security gap, the unknown response of decentralized systems to a global financial crisis situation, data privacy leaks and overall governance of the platform.

**1.3 Statement of the Research Problem**

Because they perceive crypto currencies as the money of the future, with daily value gains and the potential to grant people financial independence, investors are drawn to them (Buker, 2021). This is due to the fact that Aslan (2021)'s study on the financial economics of the crypto currency market found that the rapidly advancing digital technology is driving a shift in the finance industry. Over 9300 new cryptocurrencies have been spotted worldwide as Bitcoin's popularity has grown (CoinMarketCap, 2021a). Coins owned by the government and privately are included in this total.

## Nonetheless, the Bank of Tanzania (2019) determined that using, trading, and marketing cryptocurrencies within the United Republic of Tanzania is illegal. Despite this use and trade, there hasn't been much written about the benefits, drawbacks, and hazards of cryptocurrency adoption in Tanzania.

## 1.4 Research Objectives

## 1.4.1 General Objective

To investigate the factors that lead to the intention to adopt cryptocurrencies in Tanzania.

## Specific Objectives

1. To determine the role of cryptocurrencies in improving the livings of Tanzanians.
2. To examine the risks of adopting cryptocurrencies to the existing financial and banking ecosystem.
3. To examine the challenges of using cryptocurrencies in Tanzania.

## Research Questions

* + - 1. What are the roles of crypto currencies in improving livings of Tanzanians
      2. What are the risks of adopting crypto currencies to the existing financial and banking ecosystem??
      3. What are the challenges of using crypto currencies in Tanzania?

## Significance of the Study

## 

This report raises awareness of Tanzania's usage of cryptocurrency. It provides insight into its applications, functions, and associated difficulties. According to Dong He et al. (2016), cryptocurrency technologies have the potential to increase financial inclusion by offering a safer and more affordable means of making payments.Many research on blockchain technology have been conducted in Tanzania, but few have examined the use of cryptocurrencies as legal cash. While Likavčanová (2019) researched the blockchain as a tool to enhance Tanzania's economic development, and bitcoin as one of the applications of blockchain technology based on decentralized administration, Philemon (2020) examined the potentials and threats of cryptocurrencies in the country's financial system. Additionally, Luhanga (2020) evaluated the necessity of integrating blockchain technology into Tanzanian business schools, noting that the academic mindset poses the largest obstacle to the adoption of blockchain technology, including cryptocurrencies. Blockchain technology can be used in finance to exchange virtual currencies like Bitcoin and allow for transparent, fair, and free trading, as demonstrated by Nkwabi (2021).

# 

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Overview

This chapter presents definitions of key terms, theoretical review, empirical review, research gap and conceptual framework on cryptocurrency.

## 2.2 Definitions of Key Terms

## 2.2.1 Blockchain Technology

Blockchain technology has been defined in several ways by different researchers. Crosby et al. (2016) defined it as a distributed database of archives, or community register of all digital events that have been completed and shared among peering nodes. Blockchain technology has also been defined as a protected, open and decentralized public register (Norton, 2016). According to Akgiray (2019) blockchain is a combination of three basic technologies: peer-to-peer networks and distributed ledger, cryptography and smart contracts, each being able to work autonomously.

Blockchain technology has become much useful in many areas of expertise such as record management and decentralized voting (Miraz, Mahdi & Ali 2019). According to Ammous (2018), the main application areas of blockchain technology are smart contracts, digital payments, database and record management. Cryptocurrency technology eliminate the central authority and make transaction to be shared to all network peer nodes. The transaction sharing property among peer nodes makes it impossible to alter any data entered in the block chain. Ammous (2018) clarified that smart contract is a computer algorithm running on the Ethereum blockchain designed to form, control, and provide contract information on the asset owner.

## 2.2.2 Cryptocurrencies

Digital financial technology has changed the way of monetary transfer in the base of consumer to business (C2B), business to consumer (B2C), business to business (B2B) and consumer to consumer (C2C). It has altered the old-style of payment and brought incredible changes in the economic division. Cryptocurrencies can be defined as a peer- to-peer version of decentralized electronic cash that allows payments to be sent directly from one peer to another (Lee & Chuen 2015). Based on Panova (2020), the formation of cryptocurrencies were predicted by von Hayek in 1986 and the arrival of electronic currency. Concerning the associated risks, Dong He et al. (2016) found that cryptocurrencies came with significant risks of being a gateway for money launders, terrorist financers, tax escapers and fraud.

Bitcoin was the first peer to peer electronic cash system to allow online payments to be sent directly from one party to another without going through a financial institution (Nakamoto, 2008). Thereafter, followed many other cryptocurrencies which has made the world to have more than 9300 cryptocurrencies (CMC, 2021).

**2.2.3 Bitcoin (BTC)**

Bitcoin is the first, most known and the most valuable cryptocurrency. It was introduced in 2009 following the publication of a white paper by Satoshi Nakamoto in 2008 (Luther, 2016). Bitcoin has been defined in many ways. According to Antonopoulos (2017) Bitcoin is a peer-to-peer electronic cash system. Bitcoin (2021) defined Bitcoin as a political, philosophical, and economic system involving a chain of digital signatures. Bitcoin, as a cryptocurrency, has been the most broadly accepted cryptocurrency with the most understandable potential for commercial and business application to goods and services (Ku-Mahamud, Omar, Bakar & Muraina 2019).

The data from CMC (2021) website visited on 10th August 2021 showed that 1BTC was equivalent to $45 322.33 USD with a 24-hour trading volume of more than $3.5\*1010 USD. Moreover, the BTC was ranked #1 with a live market cap of more than $8.5\*1012 USD. Also, data indicated that BTC has a circulating supply of 18 782 043 BTC coins and a max. supply of 21 million BTC coins. This means only 2 217 957 BTC remain to be mined.

**2.2.4 Ethereum (ETH)**

Ethereum is a global, open-source blockchain platform for decentralized applications, powered by smart contracts and embedded with a native digital currency known as Ether (ETH) (Grayscale, 2020). It was intercepted in the network on July 30 2015 and first exchanged 1 ETH at $2.77 on August 2015 via Kraken exchange. Ethereum has three market segments, namely: digital currency, smart contracts and the general-purpose platform. The live data on Ethereum from CMC (2021) website retrieved on 10th August 2021 showed exchange rate of $3 129.23 USD per 1 ETH with a 24-hour trading volume of $28 918 312 764 USD. The ranking was #2, with a live market cap of $366 272 617 617 USD. The coin has a circulating supply of 117 048 906 ETH coins with no maximum supply as in bitcoin.

## 2.2.5 Cryptocurrency Exchanges

There are more than 300 cryptocurrency exchanges globally. Table 1 represents cryptocurrency exchanges with names, locations, regulators, deposit and withdrawal methods. Exchanges are managed platforms operating as a bank that are used to keep cryptocurrency tokens. It is important to check if the desired exchange you wish to be registered to is regulated and licensed. Also, know the physical location and the information about supported deposit and withdrawal methods such as Society for Worldwide Interbank Financial Telecommunications (SWIFT), local bank transfer and credit/debit card. In addition, consider checking their transaction fees, commissions and token exchange prices (CMC, 2021).

The rules used to operate cryptocurrency exchange are similar to a stockbroker, obeying to very high standards documentation to comply with the local laws. Such documents may include your valid location, phone number, address, face verification and identity document such as passport (CMC; Medium & Cryptonews 2021). Cryptocurrency exchanges store digital currency (private keys) directly with them. This makes them to be vulnerable to malicious software executed by attackers. It is advised to only keep small amount in cryptocurrency exchanges.

## Table 2.1: Cryptocurrency Exchanges

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Factor** | **Strongly** Agree (%) | **Agree** (%) | **Don’t** Know (%) | **Disagree** (%) | **Strongly Disagree** (%) |
| Cryptocurrency is the ease to use financial technology | 33 | 48 | 10 | 4 | 5 |
| Learning and understanding cryptocurrency phenomenon is easy | 34 | 50 | 6 | 6 | 4 |
| Cryptocurrency interaction platforms are user friendly | 34 | 48 | 8 | 4 | 6 |
| It is easy to remember the functions of cryptocurrency systems | 33 | 47 | 7 | 7 | 6 |

## Source: Coin Market Cap, (2021)

## 2.2.6 Cryptocurrency Wallet

According to He *et al.(*2019), a crypto currency wallet is a program or tool that aids users in managing their public and private keys, which are necessary to access digital assets. A crypto currency wallet is a location where users can store, send, and receive digital assets, according to CMC (2021). Confidentiality, availability, and integrity are the fundamental ideas underlying bitcoin wallet security (He *et al*., 2020). There are two types of wallets: hot and cold. While cold wallets do not require an internet connection, hot wallets do. Web, desktop, and mobile wallets fall under the hot wallet category, whereas hardware and paper wallets fall under the cold wallet category (Jokić *et al*., 2019; Blockchain Council, 2021).

A mobile wallet (smart phone) is the kind of wallet displayed. A person wishes to send or receive a Bitcoin transaction,. Every peer-to-peer node is informed about the transaction. These computers, known as nodes, are running blockchain software. These PCs may be owned by a blockchain miner or a bitcoin user. The broadcasted transaction is then confirmed by these nodes. Every ten minutes, a new data block is created in the Bitcoin network and added to the current blockchain by the collection of validated transactions. The transaction has been completed.

## 2.3 Theories used in this Study

## 2.3.1 Technology Acceptance Model (TAM)

The study adopted technology acceptance model (TAM). This TAM model was founded by Davis (1986) in order to forecast the user behavior in accepting new technology. This study adapted TAM model because the model covers two theories, namely; theory of reasoned action and theory of planned behavior. Ajzen (1991) established that attitude, subjective norm and perceived control are the three key behavioral elements that inspire people’s intention to have a certain behavior. In addition, Hale et al., (2012) recognized that attitude and subjective norm are the basic components of the behavioral intention. According to Davis (1989), perceived usefulness and perceived ease of use are the key elements that people use to accept or reject the new technology. The study conducted by Marangunić & Granić (2015) revealed that TAM is a key model in understanding human behavior toward the probability to accept or reject the technology.

## 2.4 Empirical Literature Review

## 2.4.1 Cryptocurrencies usage in the globe

Cryptocurrencies particularly Bitcoin across the globe though originally intended for peer- to-peer electronic cash payments without going through a financial institution, are attracting increasing attention from consumers, investors, investment industry and regulators (Ku-Mahamud et al., 2019). Becker (2018) espoused that sales transacted in bitcoin saw an increase of 55% in 2017. A study on financial economics of cryptocurrency market conducted by Aslan (2021) discovered that the world of finance is undergoing a transformation as motivated by rapid advances in digital technology. The study conducted by (Zimmerman, 2020) revealed that cryptocurrency speculation raises fees and may price out users who would otherwise use the currency to purchase goods.

On the other hand, Ayeswarya (2021) in the study titled “Going cashless with cryptocurrency in India and its impact in the banking industry” concluded that the idea of transforming into digitalization was to eliminate black money in the country whereby banking system has faced a major change in this transformation by introducing Net Banking and Mobile Banking. Furthermore, the study conducted by Buker (2021) specified that investors are attracted in cryptocurrencies such as bitcoin because they find it as money of the future whose idea of decentralization suggests economic freedom to users and keep them free from government taxation.

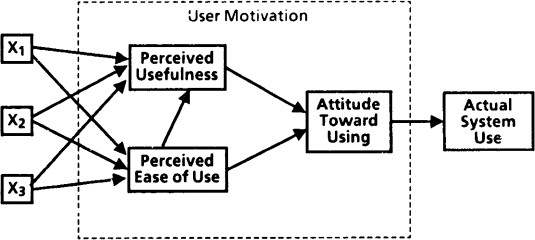
The global discussion to adopt cryptocurrency is highly influenced by the changing in financial technology brought by information technology and the internet. El Salvador is the only country in the globe that accepted bitcoin as a legal tender. According to the World Bank (2021) El Salvador is the smallest country in Central America which suffers from persistent low levels of growth and poverty reduction. The government hopes to encourage the cryptocurrency’s use for domestic and international transactions, with the aim of boosting financial inclusion (Oxford Analytica, 2021).

## 2.5 Research Gap

Cryptocurrency usefulness, roles and challenges have been researched globally and locally. It is obvious that the usage of cryptocurrencies is beneficial to some users. In Tanzania, not much has been studied regarding either to adopt or to reject cryptocurrencies as a legal tender. Tanzania Bankers' Association, Chairman, Abdulmajid Nsekela argued that the most challenging element for regulators is to be caught by surprise of innovations. He added that gradual preparations would help the central bank assess the risks of cryptocurrencies and come up with ways of addressing them in advance (Reuters, 2021). From this statement of Mr. Abdulmajid Nsekela, there is knowledge gap about cryptocurrencies almost at all levels of Tanzania society starting from bankers, merchants, regulators and the general public in large. This research has come at the right time. In 2019, the Bank of Tanzania published a notice to the public which claimed that some members of the public were engaged in trading, promoting and using cryptocurrencies which is against the current foreign exchange regulations. The notice is attached in appendix 7.1. However, H.E President of the united Republic of Tanzania, Madam Samia Suluhu Hassan requested central bank to consider and be prepared for new financial technology. Figure 3 present a caption taken from Mwananchi newspaper showing the United Republic of Tanzania President, Madam Samia Suluhu Hassan insisting about the importance of studying Bitcoin and blockchain technology.

## 2.6 Conceptual Framework

The proposed framework relies on technology acceptance model which employs perceived usefulness and perceived ease of use as the key elements to accept a new technology. According to Davis (1989) technology is said to be accepted if it is perceived as easy to use and useful to the user. Figure 2.1 presents a conceptual framework proposed by Davis (1986). The framework intended to investigate the factors that contribute to the attitude toward using the information systems. From this existing concept, the researcher proposed a new conceptual framework presented in Figure 2.1.

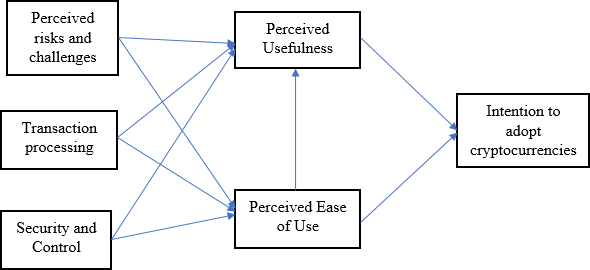


**Figure 2.1: Conceptual framework for technology acceptance model**

**Source:** (Davis, 1986)

## 2.7 A proposed conceptual framework

Figure 2.2 shows the researcher’s proposed conceptual framework. As it was stated earlier, this study aims at finding factors that establish the acceptance of cryptocurrency financial technology in Tanzania. The researcher made use of technology acceptance model in which the perceived ease of use and the perceived usefulness are the key elements in accepting information technology. The added external factors apart from usefulness and perceived ease of use are security and control, transaction processing, and risks and challenges.



**Figure 2.2: A Proposed conceptual framework.**

**Source:** Researche (2023)

## 

## 2.8 Perceived ease of use and perceived usefulness

Davis (1989) defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance.” Ease of use refers to the ability of the user to perceive that a technology can be used with less effort (Ahmer, 2017). According to various scholars (Tahar *et al.* 2020; Davis 1989; Jahangir & Begum 2008) technology has high chances of being adopted if it is perceived as ease to use and useful.

Hypothesis 1 (H1): *The perceived ease of using cryptocurrencies is positively associated with the perceived usefulness.*

## 2.9 Intention to adopt cryptocurrencies

The perceived ease of use and the perceived ease of use are the main elements that lead to the intention to adopt information technology (Davis, 1986; Davis, 1989). The concern to ease of using cryptocurrencies relies on the cryptocurrency wallets (Maria, 2020; Norman, 2017). According to Nadeem et al (2021) people intends to use cryptocurrencies to fulfill various requirements such as cross-border payments, as an alternative source of currency and as a mode of exchange. Furthermore, Nkwabi (2021) mentioned that Bitcoin can be used to enable free, fair and transparency trading.

Hypothesis 2 (H2): *The perceived ease of using cryptocurrencies is positively associated to the intention to use cryptocurrencies*.

Hypothesis 3 (H3): *The perceived usefulness is related positively to the intention to use cryptocurrencies.*

## 2.10 Transaction processing

Studies show that cryptocurrencies such as Bitcoin enables one to make ease and fast international transactions at low charges (Nadeem et al., 2021; Ermakova et al., 2017).Also, it is difficult to trace and delete transactions (Norman, 2017). According to Singh et al. (2013) cryptocurrency transactions are fast, low cost and enable international remittance transfer while fiat money involve several long steps which causes delay. Such explanations lead to the formulation of hypothesis 4 and 5 as follows;

Hypothesis 4 (H4): *The transaction processing benefits has positive significance to the perceived usefulness of cryptocurrencies*.

Hypothesis 5 (H5): *Transaction processing benefits may have positive influence on the ease of using cryptocurrencies.*

## 2.11 The perceived security and control

Han and Yang (2018) defined security as the conditions or circumstances that enables information or data to continue being confidential, truthful and available to the owner when accessed. On the other side, control means a freedom to ownership, access and management. From such descriptions, hypotheses 6 and 7 were developed as follows

Hypothesis 6 (H6): *The perceived security and control has positive influence to the perceived usefulness of cryptocurrencies*.

Hypothesis 7 (H7): *The security and control have positive impact on the ease of using cryptocurrencies.*

## 2.12 Perceived challenge and risks

Outreville (1998) defined the term risk as “a state in which losses are possible.” The study conducted by Cumming *et al.* (2019) found that there are several types of cryptocurrency fraud and regulatory uncertainty including unregulated exchanges and cyber-security fraud such as exchanges hacks, social media identity hacking, ransomware and taxation fraud. Moreover, Global Legal Research (2018) concluded that cryptocurrencies may attract money launders.

Hypothesis 8 (H8): *The perceived challenges and risks have negative impact on the perceived usefulness.*

Hypothesis 9 (H9): *The perceived risks and challenges have negative impact on the ease of using cryptocurrencies.*

# 

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Overview

Research methodology is a scientific way of solving a research problem. It includes research design, area of the study, and population of the study, sample and sampling procedures, data collection methods, research instruments, reliability and validity of data, operational definition of variables and data analysis methods and ethical consideration.

## 3.2 Research design

Two basic research approaches are quantitative and qualitative approach. Quantitative research is based on the aspect of quantity or extent of object that can be counted and expressed in terms of numbers or percentages whereas qualitative research is related to quality or variety which can’t be presented in numbers (Downs, 1990).In order to present findings in numbers, the study made use of quantitative research approach. Descriptive research design was used in order to understand what people think and believe as factors that impact them to adopt crypto currencies in Tanzania. The study employed structured questionnaire with Likert scale questions in order to make ease for respondents to answer them. The questionnaire was written in the light of (Nadeem *et al.,* 2021).

**3.3 Area of the Study**

The study covered the population of Dar es Salaam city only. This geographical coverage was selected because Dar es Salaam is a largest city and business capital of Tanzania and thus attracting a number of potential persons who use or understand the use of Crypto currency.

## 3.4 Target Population

The study population was made up of the individuals from Dar es salaam. These individuals were from academia, professional bodies, regulatory bodies, cryptocurrency users, Among the participant members were from Tanzania Telecommunication Corporation (TTCL corporation), e-Government Agency, Bank of Tanzania, Access Bank Tanzania limited, Diamond Trust bank, Dar es Salaam Institute of Technology (DIT), University of Dar es salaam (UDSM), Dar es Salaam university college of education (DUCE), the Tanzania Commission for Science and Technology (COSTECH), and cryptocurrency entrepreneurs and dealers. The respondents were chosen based on their knowledge in cryptocurrencies.

## 3.5 Sampling procedures and Sample Size

**3.5.1 Sampling Procedures**

The study employed non-probability purposive and snow ball sampling techniques. Snowball sampling is a method whereby a few cases are picked to help point others with the same knowledge, thereby increasing sample size. This approach was valid in this study due to most users of cryptocurrencies being anonymous making difficult to reach them (Brewerton & Millward 2001). In the purposive sampling, the researcher selected individuals who were aware of cryptocurrencies (Taherdoost, 2016).

**3.5.2 Sample Size**

According to Kumark (2011) sample is a small portion of population from whom a researcher collect the required information that represens the entire population to be studied. In this study, a sample size of 400 respondents were intended to be drawn. However, 368 questionnaires were responded correctly for further data analysis. The researcher accepted 368 respondents as reasonable representation of the entire population.

## 3.6 Data Collection Methods

**3.6.1 Primary data collection method**

Primary data collection methods were used. Questionnaires were used to collect data. Five points Likert scale questions were used, whereby 1= Strongly disagree, 2 = Disagree, 3= Don’t know, 4 = Agree, 5= Strongly agree. Questions were designed in the light of Nadeem *et al*. (2021).

**3.6.2 Secondary data collection method**

Secondary data were collected via books, journals, newspapers, web browsing, documents and past studies.

## 3.7 Validity and Reliability of instruments

The main instrument used in this study was a questionnaire. Pilot study which involved 68 respondents was administered via google forms to test the data collection instrument. Corrections were made in the questionnaire before the beginning of data collection exercise. According to Kumar (2011) validity is used in quantitative study to measure if findings of the study are in accordance with what was designed to find out. Kothari (2004) referred reliability as consistency in its findings when used repeatedly. To ensure reliability of the study, the researcher used judgmental and snowball sampling technique to confirm that the right samples are obtained and no bias is imposed in the study. Also, the researcher performed a pilot study in order to test the data collection instrument and corrected all suggested points of correction.

## 3.8 Operational definitions of conceptual framework variables

This study correlated six variables, namely; perceived usefulness, perceived ease of use, perceived risks and challenges, transaction processing, security and control, and the intention to adopt cryptocurrencies. These variables were the result of employing technology acceptance model (TAM) in this study. According to Davis (1986) the perceived ease of use and usefulness are two main motivations that drive people’s intention to adopt a new technology. The study made use of other factors such as perceived risks and challenges, security and control, and transaction processing, because in digital financial technologies these elements are inevitable.

## 3.9 Data analysis instrument

When the data collection was completed, the questionnaires were edited again to determine degree of response and number of usable questionnaire. Data were coded and later keyed into a computer file.The data collected were analyzed using qualitative method. Computer package models suitable for analyzing the collected data was used to establish the effects of service quality dimensions on customer’s purchase decisions and satisfaction. SPSS computer program was used in the analysis of data to test the relationships among variables. Data was analyzed by using descriptive statistics, correlation analysis and regression analysis.

**3.10 Ethical Consideration**

Before the data collection period, the researcher obtained a research ethical clearance from the Open University of Tanzania. Confidentiality and anonymity were assured to respondents as well as making clear that even though they might agree to take part in the research, they still maintain their right to privacy. All respondents had the right to withdraw and decline to take at any particular stage of this research.Informed consent observes in the field, where the researchers request permission from the respondents prior to indulging in any element of data collection.

Lastly, the researcher-maintained confidentiality, whereby all respondent was promised that was meant for academic purposes only.

# 

# CHAPTER FOUR

# FINDINGS AND DISCUSSION

## 4.1 Overview

This chapter focuses on presentation, analysis and discussion of the research findings. The findings are the result of three research objectives, including to find out the roles of cryptocurrencies in Tanzania; to evaluate the risks of adopting cryptocurrencies to the existing financial and banking ecosystem; to examine the challenges of cryptocurrencies in economic and remittance transfer. Data were collected from individuals with knowledge on cryptocurrencies. These respondents came from academia, anonymous cryptocurrency users, regulatory and professional bodies.

## 4.2 Data Presentation, Analysis and Discussion

Table 4.1 summarizes demographic information of the respondents involved in this research data. Division of respondents was based on gender, age and education. The sample size was 368 from which the distribution was recorded in percentage and frequencies. All respondents were assured that their identities would be kept anonymous and data would be used for academic research analysis only.

## 

## Table 4.1: Particulars of the Respondents

## 

|  |  |  |
| --- | --- | --- |
| **Particulars** | **N** | **%** |
| **Gender** |  |  |
| Male | 280 | 76.1 |
| Female | 88 | 23.9 |
| **Age (years)** |  |  |
| 20 – 30 | 191 | 51.9 |
| 31 – 40 | 129 | 35.1 |
| 41 – 50 | 48 | 13 |
| **Education** |  |  |
| Form four | 236 | 64.1 |
| Form six | 91 | 24.7 |
| Bachelor | 9 | 2.4 |
| PhD | 2 | 0.1 |

**Source:** Field data (2023)

Based on findings presented in Table 4.1, it is observed that respondents were of different kinds with different characteristics. This donates that the sample was neither skewed nor biased. In terms of gender, 76.1% were male and females were composed of 23.9%. In this regard, females were under represented due to the type of topic under the study. With regards to age, the sample included people of different age groups. For instance, there were 51.9% of respondents between 20-30 years- an internet active generation, 35.1% between 31-40 years and 13.0% between 41-50 years. With regards to education, the sample included all individuals with different levels of education with an exception of primary school leavers.

## 4.3 Normality test

Normality test is a method of data assessment used to know which analysis method will be used. This study used IBM SPSS tools for data analysis. After running the data into SPSS descriptive statistics, the data were found to be highly statistically significance by <0.001. Scholars recommended that if p-value (significance value) is less than significance level (Alfa, α), the data is said to be statistically significant but not normally distributed. The set Alfa value for this study was 0.05. Since 0.001 is less than 0.05, the data are not normally distributed. This non-normally distributed data was analyzed by the test known as non-parametric test.

## 4.4 Correlation Analysis

In order to test the hypotheses, the researcher performed a non-parametric test by using bivariate correlation. A bivariate correlation is a test for variable relationships which aims at looking of the effect of change of one variable under hypothesis to another variable. Table 4 shows the correlation matrix of factors under test. As it may be seen, six elements were compared, namely: transaction processing (TP), perceived usefulness (PU), security and control (SC), perceived ease of use (PEU), intention to adopt crypt currencies (IA) and the perceived challenges and risks (CR).

## 4.5 Regresion analysis

Regression analysis is a statistical method of testing the relationship between dependent (outcome) variable and the independent (covariate) variables. This study applied ordinal regression method because the data were in a Likert scale. The (model fit) relationship between outcome and covariate variables is said to fit well if it is less than the significance level of 0.05 in this case. The significance for model fitting was <0.001 which indicated that the model was fitting well to the data set. Also, the goodness of fit found under chi- square was 0.584. Since this value is greater than Alfa, this indicates that the model was fitting well to the data set. In addition, the results indicated that the sample data was a representative of the whole population.

Table 4.2 shows hypothesis correlation results. As it can be seen, the perceived ease of use had positive association on the perceived usefulness. The perceived ease of use and the perceived usefulness had positive association on the intention to use crypt currencies. Moreover, transaction processing had positive association to both perceived usefulness and ease of using crypt currencies. Furthermore, the perceived security and control had positive relationship to both the perceived ease of use and the perceived usefulness. Finally, risks and challenges of adopting crypt currencies showed no significant to both perceived usefulness and ease of using crypt currencies.

## Table 4.2: Crypto currency adoption Hypotheses correlation results

|  |  |  |  |
| --- | --- | --- | --- |
| Variable relationship | Correlation coefficient | p-value | Remarks |
| Perceived ease of use to perceived usefulness | 0.983 | <0.001 | Accepted |
| Perceived ease of use to the intention to adopt | 0.143 | 0.006 | Accepted |
| Perceived usefulness to intention to adopt | 0.141 | 0.007 | Accepted |
| Transaction processing to perceived usefulness | 0.150 | 0.004 | Accepted |
| Transaction processing to the perceived ease of use | 0.174 | <0.001 | Accepted |
| Perceived security and control to perceived usefulness | 0.143 | 0.006 | Accepted |
| Perceived security and control to perceived ease of use | 0.400 | <0.001 | Accepted |
| Risks and challenges to perceived usefulness | 0.068 | 0.194 | Rejected |
| Risks and challenges to perceived ease of use | 0.030 | 0.560 | Rejected |

**Source:** Field data (2023)

Table 4.2 shows hypothesis correlation results. As it can be seen, the perceived ease of use had positive association on the perceived usefulness. The perceived ease of use and the perceived usefulness had positive association on the intention to use cryptocurrencies. Moreover, transaction processing had positive association to both perceived usefulness and ease of using cryptocurrencies. Furthermore, the perceived security and control had positive relationship to both the perceived ease of use and the perceived usefulness. Finally, risks and challenges of adopting cryptocurrencies showed no significant to both perceived usefulness and ease of using cryptocurrencies.

## Table 4.3: Crypto currency adoption Hypotheses correlation results

## 

|  |  |  |  |
| --- | --- | --- | --- |
| Variable relationship | Correlation coefficient | p-value | Remarks |
| Perceived ease of use to perceived usefulness | 0.983 | <0.001 | Accepted |
| Perceived ease of use to the intention to adopt | 0.143 | 0.006 | Accepted |
| Perceived usefulness to intention to adopt | 0.141 | 0.007 | Accepted |
| Transaction processing to perceived usefulness | 0.150 | 0.004 | Accepted |
| Transaction processing to the perceived ease of use | 0.174 | <0.001 | Accepted |
| Perceived security and control to perceived usefulness | 0.143 | 0.006 | Accepted |
| Perceived security and control to perceived ease of use | 0.400 | <0.001 | Accepted |
| Risks and challenges to perceived usefulness | 0.068 | 0.194 | Rejected |
| Risks and challenges to perceived ease of use | 0.030 | 0.560 | Rejected |

**Source**: Field data (2023)

## 4.6 Analysis of research objectives

As it was stated earlier, the main objective of this study was to examine factors that impact the intention to adopt crypt currencies in Tanzania. In order to achieve this general objective, the researcher divided it into three specific objectives, whose findings are presented in the subsequent sections.

## 4.7 Roles of crypt currencies in Tanzania

The roles of crypt currencies were analyzed based on the usefulness, ease of use, transaction processing, security and control of crypto currency assets. Figure 6 shows results of the perceived usefulness of crypt currencies in Tanzania. On average, 80% of the respondents agreed that crypt currencies are useful. The usefulness lies on factors such as faster transactions, alternative source of currency, international money transfer, time serving and making the harassment free transactions. This result agrees with the study done by different scholars (Jonker, 2018, Nadeem *et al*., 2021).

In finding out if crypto currency technology fintech is an ease to use technology, the researcher raised five factors whose results are presented in Table 5. It was found that, 81% of the respondents thought using crypto currency is easy. This easiness was found in learning and understanding, user friendly platforms and less effort involved in using cryptocurrency platforms such as digital wallets and exchange services. The researcher’s results agreed with the result concluded by Nuryyev *et al.* (2020) and Nadeem *et al.* (2021).

## Table 4.4: The role of crypt currencies in the perceived usefulness

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Factor | Strongly Agree (%) | Agree (%) | Don’t Know (%) | Disagree (%) | Strongly Disagree (%) | Total (%) |
| Cryptocurrency is the ease to use financial technology | 33 | 48 | 10 | 4 | 5 | 100 |
| Learning and understanding cryptocurrency phenomenon is easy | 34 | 50 | 6 | 6 | 4 | 100 |
| Cryptocurrency interaction platforms are user friendly | 34 | 48 | 8 | 4 | 6 | 100 |
| It is easy to remember the functions of cryptocurrency systems | 33 | 47 | 7 | 7 | 6 | 100 |
| I perceive that cryptocurrencies can be used at less effort | 30 | 50 | 8 | 9 | 3 | 100 |

## Source: Field data (2023)

The role of crypt currencies in Tanzania was also evaluated based on transaction processing elements. The results were summarized in Table 6. From the table, 81% responses agreed that crypt currencies have roles to accomplish in transaction processing. These roles include money transfer all over the world, transfer of even a very small portion of money, transfer and withdrawal of money at low cost and ease transactions. The result of this study in transaction processing was similar to those of Nadeem *et al.* (2021).

## Table 4.5: Role of crypt currencies in transaction processing

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factor** | **Strongly Agree (%)** | **Agree (%)** | **Don’t Know (%)** | **Disagree (%)** | **Strongly Disagree (%)** | **Total**  **%** |
| Cryptocurrencies enable me to transfer money instantly all around the world | 22 | 59 | 8 | 5 | 6 | 100 |
| Cryptocurrencies enable me to transfer even very small fraction of money | 28 | 52 | 7 | 11 | 2 | 100 |
| Cryptocurrencies enable me to transfer and withdraw money at low cost | 28 | 55 | 11 | 5 | 1 | 100 |
| Cryptocurrencies such as Bitcoin enable me to easily  transact money. | 20 | 59 | 12 | 5 | 4 | 100 |

**Source:** Field data (2023)

Finally, the researcher looked on the security and control features of cryptocurrencies. The results were presented in Figure 7. It was observed that 81% of respondent consider cryptocurrency peer-to-peer network to enables users to make secure transactions. This is due to use of hashing and encryption (Ayeswarya, 2021). Also, 80% of respondents agreed that crypt currencies found in permissioned (private) blockchain are more secured than that found in the permission less (public) blockchain. These private coins such as Monero are anonymous and untraceable (CMC, 2021). The last factor looked by researcher was a user control of cryptocurrency assets. In view of that, 81% responded that crypt currencies facilitate harassment free transactions due to owner of crypto currency assets being able to access it anytime, anywhere and transfer any amount (Ammous, 2018).

## 4.8 Challenges of adopting crypt currencies in Tanzania

Oxford University Press (2021) defined the term challenge as a new or difficult task that tests someone's ability and skill. The result from Figure 8 shows that 84% of respondents accepted that crypt currencies came with a challenge of being a new gateway for illegal business such as money laundering and human trafficking. This was the same as the study by Jafari *et al*. (2018) and Philemon (2020).

## 4.9 Risks of adopting crypt currencies to financial and banking ecosystem

Considering Table 4.7 which shows two major risks of adopting cryptocurrencies to the financial and banking ecosystem in Tanzania. These risks are hacker’s attack on cryptocurrency wallets and government loss in financial control due to speculations. Among the respondents, 81% agreed that cryptocurrency wallets are facing high risk of hacker’s attack. These attacks include malware, man in the middle, phishing and deny of service. The results was supported by several studies including (Jain et al., 2017; Global Legal Research, 2018 & Reddy, 2019). Furthermore, 71% agreed that government may lose financial control due to speculative nature of cryptocurrency as a business. This was evidenced in China (Dniprov et al., 2019). Cryptocurrencies such as Bitcoin are said to bespeculative business because there is no central authority which controls prices. Price controls itself due to demand and supply. Until now, only one country known as El Salvador has accepted Bitcoin as legal tender (Oxford Analytica, 2021).

## Table 4.6: Risks of adopting cryptocurrencies.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factor** | **Strongly Agree (%)** | **Agree (%)** | **Don’t Know (%)** | **Disagree (%)** | **Strongly Disagree (%)** | **Total (%)** |
| Private keys stored in digital wallets are susceptible to hacker’s attack. | 35 | 46 | 9 | 8 | 7 | 100 |
| Virtual currencies may cause government to lose financial control due to  speculations | 33 | 39 | 10 | 9 | 9 | 100 |

**Source:** Field data 2023)

## 4.10 The intention to adopt cryptocurrencies in Tanzania

After going through all specific objectives, the researcher wanted to know how individual respondents think on the intention to adopt cryptocurrencies fintech. Table 8 is the presentation of user intention to adopt cryptocurrencies. Despite of the involved risks and challenges, 75% of the responses showed the intention to use cryptocurrencies to fulfil various roles such as making online purchase, doing speculative business, using it as alternative source of currency and making international money transfer.

## Table 4.7: Users intention to adopt cryptocurrencies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Factor | Strongly Agree (%) | Agree (%) | Don’t Know (%) | Disagree (%) | Strongly Disagree (%) | Total (%) |
| I intend to use cryptocurrency such as Bitcoin as the alternative source of currency | 29 | 45 | 11 | 7 | 8 | 100 |
| I prefer to use cryptocurrency for speculation trading | 31 | 48 | 8 | 6 | 7 | 100 |
| I intend to use cryptocurrency such as Bitcoin for online purchases | 28 | 53 | 7 | 6 | 6 | 100 |
| I prefer to use cryptocurrency for international money transfer | 31 | 46 | 10 | 6 | 7 | 100 |
| I prefer using crypto currency as a mode  of exchange | 29 | 44 | 17 | 5 | 5 | 100 |

**Source:** Field data (2023)

## 4.11 Discussion of the research findings

Considering the correlation result in Table 4, Hypothesis 1 was verified since the perceived ease of use had a very strong positive correlation on the perceived usefulness. The results were similar to those obtained in studies done by various scholars (Davis, 1986; Tahar et al., 2020; Davis, 1989; Jahangir & Begum, 2008). Furthermore, Hypotheses 2 and 3 were verified since perceived ease of use and perceived usefulness had positive association to the intention to use cryptocurrencies. Similar result were found in the study conducted by Nadeem et al. (2021) and Nuryyev et al. (2020). Furthermore, Hypotheses 4 and 5 were verified since transaction processing had a positive significance on the perceived usefulness and ease of use. Similar result was obtained by (Nadeem et al., 2021). Since Hypotheses 1, 2, 3, 4 and 5 were intended to find out the roles of cryptocurrencies in Tanzania. The study revealed that cryptocurrencies such as Bitcoin can be used to fulfil various roles including making instant international money transfer, low transaction charges, an alternative source of currency, making free anonymous transaction and for online purchases.

In addition, Hypotheses 6 and 7 intended to evaluate security and control features of cryptocurrency platforms. It was found that security and control had positive relationship on both perceived ease of using cryptocurrencies and perceived usefulness. However, the study done by (Nadeem et al., 2021) found insignificant relationship between these variables. It is agreed that, lack of strong and reliable security is what brings risks. According to different scholars (Nabilou, 2020; Nuryyev et al., 2020; Kesa & Mahoro, 2019) security and control are among the dark side of cryptocurrency financial technology. This means that, there exist security gaps that may cause loss of cryptocurrencies (Ng & Griffin, 2018). Cryptocurrency wallets and exchanges are the most targets by attackers (CoinMarketCap, 2021; Garrick & Rauchs, 2017).

Finally, the risks and challenges of adopting cryptocurrencies was found to have no significance to on both perceived usefulness and ease of using cryptocurrencies. Studies done by Daojing He et al. (20200, Kfir (2020) and Philemon (2020) found that cryptocurrency wallets are susceptible to hackers and data loss. Also, Jokić et al. (2019) reported that online wallets are susceptible to various online frauds while mobile wallets are susceptible to malware and key logger. Furthermore, Ng & Griffin (2018) verified that the risks of cryptocurrencies to the central banks include security gap, the unknown response of decentralized systems to a global financial crisis situation, data privacy leaks and overall governance of the platform. Anonymous feature may attract illegal business such as money laundering and human trafficking (Taylor et al., 2020; Kesa & Mahoro, 2019; Böhme et al., 2015).

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

# 

## 5.1 Overview

This chapter is divided into five sections, namely: summary of the study findings, conclusion, recommendations, policy implications and the area of further study.

## 5.2 Summary of the study Findings

This study examined factors that impact the intention to adopt cryptocurrencies in Tanzania. A total of 368 respondents from Dar es Salaam city were employed in primary data collection. Purposive and snowball sampling techniques were used in order to get the needed sample. The study adopted technology acceptance model with conceptual framework modified from Davis (1986). Three specific objectives were associated with the main objective. The specific objectives were: To find out the roles of cryptocurrencies in Tanzania; To evaluate the risks of adopting cryptocurrencies to the existing financial and banking ecosystem; and To examine the challenges of cryptocurrencies in economic and remittance transfer. The primary data collection instrument was questionnaire while documents and literature review were other instruments used for secondary data collection. Some of the questions were revised from Nadeem et al. (2021). Data were analyzed by using IBM SPSS statistics subscription whereby the descriptive statistics, correlation of variables and regression analysis were performed in order to test the hypotheses. The discussions of findings are based on frequencies and hypotheses test results.

Based on frequencies, 80% of the respondents agreed that cryptocurrencies have roles to accomplish in Tanzania. These roles are found in ease of use, usefulness, transaction processing, security and control of cryptocurrency assets and platforms. The roles include easy transactions, fast international money transfer and low transaction charges. Moreover, respondents agreed that cryptocurrencies can be used as an alternative source of currency and as a payment method for online shopping. In line with that, cryptocurrencies were found to have high peer-to-peer transaction security and user control. Cryptocurrency users experienced more freedom and harassment free transaction processing environment as compared to banking procedures.

On responding to the challenges associated with accepting cryptocurrencies as a legal tender, 84% of responses showed that cryptocurrencies come with challenge of being a gateway for illegal business such as money laundering and human trafficking. Furthermore, 79% of respondents agreed that cryptocurrencies are facing low penetration due to lack of awareness which is mainly caused by prohibition in many countries of the world. Finally, 81% of respondents agreed that cryptocurrency wallets are vulnerable to hacker’s attack. Such attacks include malware, man in the middle, phishing and deny of service. Furthermore, 71% agreed that government may lose financial control due to speculative nature of cryptocurrency as a business.

In response to the hypotheses test, strong positive relationship was found between perceived ease of use and the perceived usefulness of cryptocurrencies. Also, elements of perceived ease of use and perceived usefulness were found to have positive relationship to the intention to adopt cryptocurrencies in Tanzania. Moreover, transaction processing and the perceived security and control had positive influence to the perceived usefulness and ease using of cryptocurrencies. Finally, the perceived challenges and risks were found to have no association to perceived ease of use and perceived usefulness of cryptocurrencies.

## 5.3 Conclusion

The study concludes that security gaps, risks and challenges are among the factors that hinders cryptocurrencies from being used as a legal tender in Tanzania. Also, the decentralized and anonymous features of cryptocurrencies such as Bitcoin raises control questions. All these increases difficulty for the governments and central banks to authorize this technology. Such a situation causes low penetration due to lack of reliable, affordable and open education.

Moreover, the study concluded that cryptocurrencies have various roles to fulfill. These roles include instant international money transfer, speculative business, time serving and online purchase platform. There are some members of the nation who are trading, marketing and using cryptocurrencies regardless of the security gaps, risks and challenges. In view of that, the government of Tanzania should think of introducing blockchain technology syllabus particularly the cryptocurrency education. This may be taken as a specialization just like any other specialization.

Furthermore, the study concludes that since the global is in the move to accommodate cryptocurrencies in their monetary policies, Tanzania should get ready for this. The readiness shall include studies on risks, security gaps and challenges that cryptocurrencies have to the existing financial and banking ecosystems. Also, the Bank of Tanzania may think of reviewing its monetary Acts, policies and regulations in order to reflect the current need.This study contribute knowledge to the growing literature of cryptocurrencies in Tanzania which is useful to scholars and other stakeholders.

## 5.4 Recommendations

* + 1. Since cryptocurrencies such as Bitcoin has proven to be useful and easy to use, the researcher recommends to the Bank of Tanzania to carefully review its foreign exchanges policy in order to accommodate this new financial technology.
    2. Since cryptocurrency exchanges can be regulated just as banks, the researcher proposes to the Bank of Tanzania and the government to consider establishing its own cryptocurrency exchange that will be regulated by the Bank of Tanzania.
    3. Since knowledge on cryptocurrencies is not satisfactory in the community, the study recommends that detailed researches and constructive discussions need to be done before Bank of Tanzania considers introducing this monetary system in Tanzania. Also, public education should be provided via televisions, radios, and social medias in order to reduce the knowledge gap. Moreover, syllabus on blockchain technology particularly cryptocurrencies should be introduced in all levels of education.
    4. Since laws, policies and acts such as the Banking and Financial Instructions Act of 2006 restricts members of the public from engaging in cryptocurrencies, the study recommends the authorities to come up with amendment on this Act which will accommodate the new financial technologies including cryptocurrencies.
    5. Since some countries have recognized the usefulness of cryptocurrencies, the study recommends to the Bank of Tanzania to recognize this financial technology and give room for reviewing the existing monetary policy.
    6. The study recommends to the government of Tanzania to come up with cryptocurrency based in Tanzania. The study suggests a name to be TanCoin.
    7. The study further recommends to the government of Tanzania to ensure the availability of facilitating infrastructures such as reliable and affordable internet service to all. This will decrease digital divide among rural and urban communities.
    8. The study recommends to the government of Tanzania to strengthen financial cyber security and forensic department in order to help in solving digital transactions challenges.

## 5.5 Policy Implications

From the research findings, cryptocurrencies are being traded, promoted and used in Tanzania. The existing Financial Act and policy restrict people from engaging into cryptocurrencies business. In this digital age, this Act and policy should be amended to suit the current situation.

## 5.6 Area of further study

The researcher recommends further study on the challenges and risks associated with the adoption of cryptocurrencies as a legal tender in Tanzania. Also, further studies should cover other regions because this study was based in Dar es salaam city only.

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# APPENDICES

# QUESTIONNAIRE

# CRYPTOCURRENCIES ADOPTION IN TANZANIA

Some questions were adopted from (Nadeem *et al.,* 2021).

## A: Respondent’s particulars: Please tick  the appropriate

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Age** (in years): 20 – 30 [ | ] | 31 – 40 [ | ] | 41 – 50 [ | ] |
| **Gender**: Male [ | ] | Female [ |  | ] |  |
| **Education**: Form four and | below [ | ] |  | Bachelor/College[ | ] |
|  | Masters [ | ] |  | PhD [ ] |  |
| **B: Questions** |  |  |  |  |  |

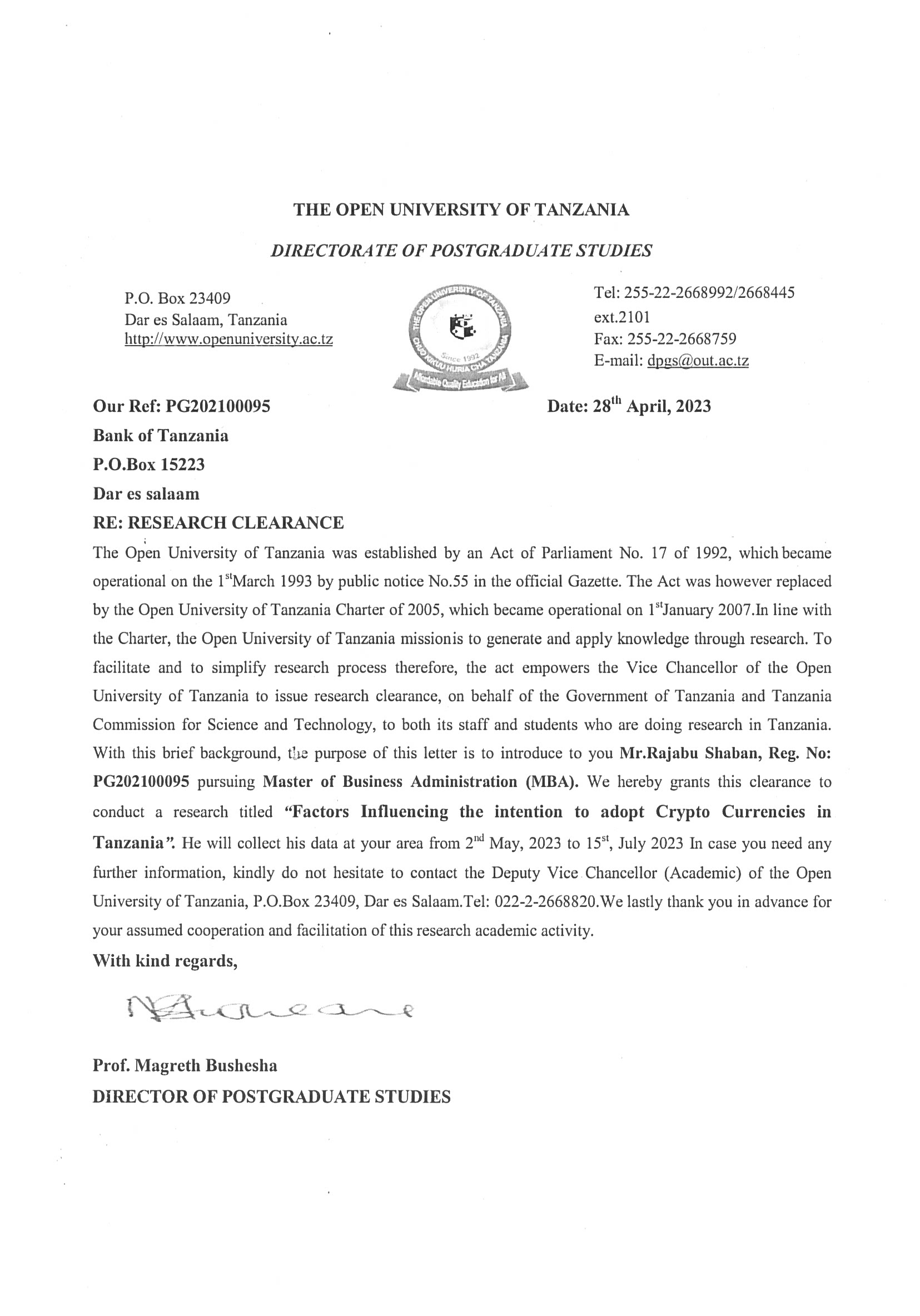
To answer the following questions, use scale:

5– Strongly Agree, 4 – Agree, 3 – Don’t know, 2- Disagree, 1 – Strongly Disagree

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Tick**  **the box** | | | | | | | | | | | |
| **Variable name** | | **No.** | **Item** | | | | **5** | **4** | **3** | **2** | **1** |
| Perceived  usefulness | | 1 | Cryptocurrencies payment is faster than  other payment methods. | | | |  |  |  |  |  |
|  | | 2 | Cryptocurrency is a good alternative source  of currency. | | | |  |  |  |  |  |
|  | | 3 | Cryptocurrencies enable fast international  money transfer at low cost. | | | |  |  |  |  |  |
|  | | 4 | Cryptocurrencies enables  harassment free transactions. | me | to | make |  |  |  |  |  |
|  | | 5 | Transactions with cryptocurrencies serves  my time. | | | |  |  |  |  |  |
| Perceived  of use | ease | 1 | Cryptocurrency is the ease to use financial  technology. | | | |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
|  | 2 | Learning and understanding cryptocurrency  phenomena is ease. |
|  | 3 | Cryptocurrency interaction platforms such  as wallets are user friendly. |
|  | 4 | It is ease to remember the functions of  cryptocurrency system. |
|  | 5 | I perceive that cryptocurrency can be used at  less efforts. |
| Transaction  processing | 1 | Cryptocurrencies enables me to transfer  money instantly all around the world. |
|  | 2 | Cryptocurrencies enables me to transfer a  small fraction of amount. |
|  | 3 | Cryptocurrencies enables me to transfer and  withdraw money with low transaction fees. |
|  | 4 | Cryptocurrencies such as Bitcoin enables me  to easily transact money. |
| Perceived security and  control | 1 | Cryptocurrency peer-to-peer network enables to transfer and receive money  securely. |
|  | 2 | Cryptocurrencies based on permissioned  blockchain are more secured than permission less |
|  | 3 | Cryptocurrencies facilitate harassment free transactions as compared to banks |
| Perceived risks | 1 | Private keys stored in digital wallets are susceptible to hacker’s attack. |

|  |  |  |
| --- | --- | --- |
|  | 2 | Virtual currencies may cause government to lose financial control due to speculations. |
| Perceived Challenges | 1 | Anonymous feature of cryptocurrency users may support illegal activities such as money  laundering and human trafficking |
|  | 2 | Cryptocurrencies face low penetration due  to lack of awareness which mainly caused by governments to ban it |
| Intention to adopt cryptocurrencies | 1 | I intend to use cryptocurrencies such as  Bitcoin as the alternative source of money |
| 2 | I prefer to use cryptocurrencies as a  speculative business |
|  | 3 | I prefer to use cryptocurrencies such as  Bitcoin for online purchase |
|  | 4 | I intend to use cryptocurrencies for  international money transfer |
|  | 5 | I prefer using cryptocurrency as the mode of  exchange. |

**Research clearance letter**

**Factors influencing the Intention to Adopt Cryptocurrencies in Tanzania**

Mr Rajabu Shabani and Dr.Asha Katamba

***ABSTRACT***

*Cryptocurrency as a digital cashless system has been perceived to accomplish numerous roles including instant international money transfer, making transactions at low charges, online payments, alternative source of currency, and as a speculative business. Moreover, the decentralized and anonymous feature enable it to give freedom and confidentiality of its users. This study aimed to examine factors that impact the intention to adopt cryptocurrencies in Tanzania. The conceptual framework in which hypotheses have been proposed based on Technology Acceptance model (TAM). The study was based on quantitative design approach and data were collected via questionnaire from 368 Dar es Salaam citizens. Findings indicated that the perceived usefulness and the perceived ease of use showed positive association on the intention to use cryptocurrencies. On the contrary, the perceived challenges and risks were insignificant to both the perceived usefulness and the perceived ease of using cryptocurrencies. The study concludes that cryptocurrencies such as Bitcoin can be used in Tanzania to fulfill various roles. Furthermore, the study concludes that security gaps, risks and challenges are among the factors that hinders cryptocurrencies from being used as a legal tender in Tanzania. The study recommends to the government of Tanzania to consider establishing a syllabus on blockchain technology particularly cryptocurrencies in all levels of college and higher education. This will provide a wider understanding of this technology. Also, central bank should review the Tanzania monetary policy in order to accommodate new financial technologies including cryptocurrencies.*

*Keywords: Cryptocurrency, Adoption, Tanzania*

# INTRODUCTION

The twenty-first century, sometimes referred to as the "century of the digital economy," has seen tremendous technological innovation. Since switching from using fiat money to electronic, digital, and virtual currencies, the financial industry has undergone significant technological advancements. In Tanzania, there has been improvement in the financial inclusion of both rural and urban residents. In order to reach the unreached, financial service providers like banks and mobile money agents have expanded their offerings.

Blockchain technology known as cryptocurrency is built on a peer-to-peer decentralized cashless system that enables payments to be exchanged instantly over the internet between peers (Lee & Chuen, 2015). Numerous academics' studies (Ablyazov & Petrov, 2019; Nadeem *et al.,* 2021) found that cryptocurrencies are a quick and inexpensive way to send money internationally. They are also useful for online payments and save time. After Satoshi Nakamoto published a whitepaper on Bitcoin in 2008, the first cryptocurrency was launched in 2009 and is known as Bitcoin (Helleiner, 2011; Luther, 2016). Scardovi (2000) asserts that cryptocurrencies and other digital financial technologies will upend the current international economic structures.Because they perceive cryptocurrencies as the money of the future, with daily value gains and the potential to grant people financial independence, investors are drawn to them (Buker, 2021). This is due to the fact that Aslan (2021)'s study on the financial economics of the cryptocurrency market found that the rapidly advancing digital technology is driving a shift in the finance industry. Over 9300 new cryptocurrencies have been spotted worldwide as Bitcoin's popularity has grown (CoinMarketCap, 2021a). Coins owned by the government and privately are included in this total.However, the study done by Dong *He et al.* (2016) found that cryptocurrencies came with significant risks of being a gateway for money launders, tax escapers, terrorist financers, and fraud.

According to Ng & Griffin (2018) the risks of cryptocurrencies to the central bank include security gap, the unknown response of decentralized systems to a global financial crisis situation, data privacy leaks and overall governance of the platform.Because they perceive crypto currencies as the money of the future, with daily value gains and the potential to grant people financial independence, investors are drawn to them (Buker, 2021). This is due to the fact that Aslan (2021)'s study on the financial economics of the crypto currency market found that the rapidly advancing digital technology is driving a shift in the finance industry. Over 9300 new cryptocurrencies have been spotted worldwide as Bitcoin's popularity has grown (CoinMarketCap, 2021a). Coins owned by the government and privately are included in this total.Nonetheless, the Bank of Tanzania (2019) determined that using, trading, and marketing cryptocurrencies within the United Republic of Tanzania is illegal. Despite this use and trade, there hasn't been much written about the benefits, drawbacks, and hazards of cryptocurrency adoption in Tanzania.

The aim of this study is to investigate the factors that lead to the intention to adopt cryptocurrencies in Tanzania.Specifically the study determines the role of cryptocurrencies in improving the livings of Tanzanians,examines the risks of adopting cryptocurrencies to the existing financial and banking ecosystem and examines the challenges of using cryptocurrencies in Tanzania. This study raises awareness of Tanzania's usage of cryptocurrency. It provides insight into its applications, functions, and associated difficulties. According to Dong He et al. (2016), cryptocurrency technologies have the potential to increase financial inclusion by offering a safer and more affordable means of making payments.Many research on blockchain technology have been conducted in Tanzania, but few have examined the use of cryptocurrencies as legal cash.

# LITERATURE REVIEW

Blockchain technology has been defined in several ways by different researchers. Crosby et al. (2016) defined it as a distributed database of archives, or community register of all digital events that have been completed and shared among peering nodes. Blockchain technology has also been defined as a protected, open and decentralized public register (Norton, 2016). According to Akgiray (2019) blockchain is a combination of three basic technologies: peer-to-peer networks and distributed ledger, cryptography and smart contracts, each being able to work autonomously.

Blockchain technology has become much useful in many areas of expertise such as record management and decentralized voting (Miraz, Mahdi & Ali 2019). According to Ammous (2018), the main application areas of blockchain technology are smart contracts, digital payments, database and record management. Cryptocurrency technology eliminate the central authority and make transaction to be shared to all network peer nodes. The transaction sharing property among peer nodes makes it impossible to alter any data entered in the block chain. Ammous (2018) clarified that smart contract is a computer algorithm running on the Ethereum blockchain designed to form, control, and provide contract information on the asset owner.

Digital financial technology has changed the way of monetary transfer in the base of consumer to business (C2B), business to consumer (B2C), business to business (B2B) and consumer to consumer (C2C). It has altered the old-style of payment and brought incredible changes in the economic division. Cryptocurrencies can be defined as a peer- to-peer version of decentralized electronic cash that allows payments to be sent directly from one peer to another (Lee & Chuen 2015). Based on Panova (2020), the formation of cryptocurrencies were predicted by von Hayek in 1986 and the arrival of electronic currency. Concerning the associated risks, Dong He et al. (2016) found that cryptocurrencies came with significant risks of being a gateway for money launders, terrorist financers, tax escapers and fraud.

## Cryptocurrency Exchanges

There are more than 300 cryptocurrency exchanges globally. Table 1 represents cryptocurrency exchanges with names, locations, regulators, deposit and withdrawal methods. Exchanges are managed platforms operating as a bank that are used to keep cryptocurrency tokens. It is important to check if the desired exchange you wish to be registered to is regulated and licensed. Also, know the physical location and the information about supported deposit and withdrawal methods such as Society for Worldwide Interbank Financial Telecommunications (SWIFT), local bank transfer and credit/debit card. In addition, consider checking their transaction fees, commissions and token exchange prices (CMC, 2021).

The rules used to operate cryptocurrency exchange are similar to a stockbroker, obeying to very high standards documentation to comply with the local laws. Such documents may include your valid location, phone number, address, face verification and identity document such as passport (CMC; Medium & Cryptonews 2021). Cryptocurrency exchanges store digital currency (private keys) directly with them. This makes them to be vulnerable to malicious software executed by attackers. It is advised to only keep small amount in cryptocurrency exchanges.

## Theory used

## Technology Acceptance Model (TAM)

The study adopted technology acceptance model (TAM). This TAM model was founded by Davis (1986) in order to forecast the user behavior in accepting new technology. This study adapted TAM model because the model covers two theories, namely; theory of reasoned action and theory of planned behavior. Ajzen (1991) established that attitude, subjective norm and perceived control are the three key behavioral elements that inspire people’s intention to have a certain behavior. In addition, Hale et al., (2012) recognized that attitude and subjective norm are the basic components of the behavioral intention. According to Davis (1989), perceived usefulness and perceived ease of use are the key elements that people use to accept or reject the new technology. The study conducted by Marangunić & Granić (2015) revealed that TAM is a key model in understanding human behavior toward the probability to accept or reject the technology.

## Empirical Literature

Cryptocurrencies particularly Bitcoin across the globe though originally intended for peer- to-peer electronic cash payments without going through a financial institution, are attracting increasing attention from consumers, investors, investment industry and regulators (Ku-Mahamud et al., 2019). Becker (2018) espoused that sales transacted in bitcoin saw an increase of 55% in 2017. A study on financial economics of cryptocurrency market conducted by Aslan (2021) discovered that the world of finance is undergoing a transformation as motivated by rapid advances in digital technology. The study conducted by (Zimmerman, 2020) revealed that cryptocurrency speculation raises fees and may price out users who would otherwise use the currency to purchase goods.

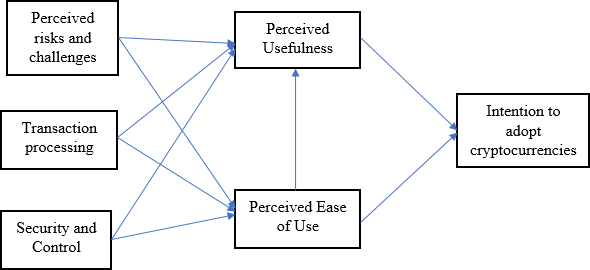
On the other hand, Ayeswarya (2021) in the study titled “Going cashless with cryptocurrency in India and its impact in the banking industry” concluded that the idea of transforming into digitalization was to eliminate black money in the country whereby banking system has faced a major change in this transformation by introducing Net Banking and Mobile Banking. Furthermore, the study conducted by Buker (2021) specified that investors are attracted in cryptocurrencies such as bitcoin because they find it as money of the future whose idea of decentralization suggests economic freedom to users and keep them free from government taxation.

The global discussion to adopt cryptocurrency is highly influenced by the changing in financial technology brought by information technology and the internet. El Salvador is the only country in the globe that accepted bitcoin as a legal tender. According to the World Bank (2021) El Salvador is the smallest country in Central America which suffers from persistent low levels of growth and poverty reduction. The government hopes to encourage the cryptocurrency’s use for domestic and international transactions, with the aim of boosting financial inclusion (Oxford Analytica, 2021).

Cryptocurrency usefulness, roles and challenges have been researched globally and locally. It is obvious that the usage of cryptocurrencies is beneficial to some users. In Tanzania, not much has been studied regarding either to adopt or to reject cryptocurrencies as a legal tender. Tanzania Bankers' Association, Chairman, Abdulmajid Nsekela argued that the most challenging element for regulators is to be caught by surprise of innovations. He added that gradual preparations would help the central bank assess the risks of cryptocurrencies and come up with ways of addressing them in advance (Reuters, 2021). From this statement of Mr. Abdulmajid Nsekela, there is knowledge gap about cryptocurrencies almost at all levels of Tanzania society starting from bankers, merchants, regulators and the general public in large. This research has come at the right time. In 2019, the Bank of Tanzania published a notice to the public which claimed that some members of the public were engaged in trading, promoting and using cryptocurrencies which is against the current foreign exchange regulations. The notice is attached in appendix 7.1. However, H.E President of the united Republic of Tanzania, Madam Samia Suluhu Hassan requested central bank to consider and be prepared for new financial technology. Figure 3 present a caption taken from Mwananchi newspaper showing the United Republic of Tanzania President, Madam Samia Suluhu Hassan insisting about the importance of studying Bitcoin and blockchain technology.

## Conceptual Framework

Figure 1 shows the author’s proposed conceptual framework. As it was stated earlier, this study aims at finding factors that establish the acceptance of cryptocurrency financial technology in Tanzania. The researcher made use of technology acceptance model in which the perceived ease of use and the perceived usefulness are the key elements in accepting information technology. The added external factors apart from usefulness and perceived ease of use are security and control, transaction processing, and risks and challenges.



**Figure 1: A Conceptual framework.**

**Source:** Authors (2024)

# METHODOLOGY

Two basic research approaches are quantitative and qualitative approach. Quantitative research is based on the aspect of quantity or extent of object that can be counted and expressed in terms of numbers or percentages whereas qualitative research is related to quality or variety which can’t be presented in numbers (Downs, 1990).In order to present findings in numbers, the study made use of quantitative research approach. Descriptive research design was used in order to understand what people think and believe as factors that impact them to adopt crypto currencies in Tanzania. The study employed structured questionnaire with Likert scale questions in order to make ease for respondents to answer them. The questionnaire was written in the light of (Nadeem *et al.,* 2021).

The study covered the population of Dar es Salaam city only. This geographical coverage was selected because Dar es Salaam is a largest city and business capital of Tanzania and thus attracting a number of potential persons who use or understand the use of Crypto currency.The study population was made up of the individuals from Dar es salaam. These individuals were from academia, professional bodies, regulatory bodies, cryptocurrency users, Among the participant members were from Tanzania Telecommunication Corporation (TTCL corporation), e-Government Agency, Bank of Tanzania, Access Bank Tanzania limited, Diamond Trust bank, Dar es Salaam Institute of Technology (DIT), University of Dar es salaam (UDSM), Dar es Salaam university college of education (DUCE), the Tanzania Commission for Science and Technology (COSTECH), and cryptocurrency entrepreneurs and dealers. The respondents were chosen based on their knowledge in cryptocurrencies.

The study employed non-probability purposive and snow ball sampling techniques. Snowball sampling is a method whereby a few cases are picked to help point others with the same knowledge, thereby increasing sample size. This approach was valid in this study due to most users of cryptocurrencies being anonymous making difficult to reach them (Brewerton & Millward 2001). In the purposive sampling, the researcher selected individuals who were aware of cryptocurrencies (Taherdoost, 2016). According to Kumark (2011) sample is a small portion of population from whom a researcher collect the required information that represens the entire population to be studied. In this study, a sample size of 400 respondents were intended to be drawn. However, 368 questionnaires were responded correctly for further data analysis. The researcher accepted 368 respondents as reasonable representation of the entire population.

## Data Collection Methods

Primary data collection methods were used. Questionnaires were used to collect data. Five points Likert scale questions were used, whereby 1= Strongly disagree, 2 = Disagree, 3= Don’t know, 4 = Agree, 5= Strongly agree. Questions were designed in the light of Nadeem *et al*. (2021). Secondary data were collected via books, journals, newspapers, web browsing, documents and past studies.The main instrument used in this study was a questionnaire. Pilot study which involved 68 respondents was administered via google forms to test the data collection instrument. Corrections were made in the questionnaire before the beginning of data collection exercise. According to Kumar (2011) validity is used in quantitative study to measure if findings of the study are in accordance with what was designed to find out. Kothari (2004) referred reliability as consistency in its findings when used repeatedly. To ensure reliability of the study, the researcher used judgmental and snowball sampling technique to confirm that the right samples are obtained and no bias is imposed in the study. Also, the researcher performed a pilot study in order to test the data collection instrument and corrected all suggested points of correction.

This study correlated six variables, namely; perceived usefulness, perceived ease of use, perceived risks and challenges, transaction processing, security and control, and the intention to adopt cryptocurrencies. These variables were the result of employing technology acceptance model (TAM) in this study. According to Davis (1986) the perceived ease of use and usefulness are two main motivations that drive people’s intention to adopt a new technology. The study made use of other factors such as perceived risks and challenges, security and control, and transaction processing, because in digital financial technologies these elements are inevitable.

When the data collection was completed, the questionnaires were edited again to determine degree of response and number of usable questionnaire. Data were coded and later keyed into a computer file.The data collected were analyzed using qualitative method. Computer package models suitable for analyzing the collected data was used to establish the effects of service quality dimensions on customer’s purchase decisions and satisfaction. SPSS computer program was used in the analysis of data to test the relationships among variables. Data was analyzed by using descriptive statistics, correlation analysis and regression analysis.

Before the data collection period, the researcher obtained a research ethical clearance from the Open University of Tanzania. Confidentiality and anonymity were assured to respondents as well as making clear that even though they might agree to take part in the research, they still maintain their right to privacy. All respondents had the right to withdraw and decline to take at any particular stage of this research.Informed consent observes in the field, where the researchers request permission from the respondents prior to indulging in any element of data collection.

Lastly, the researcher-maintained confidentiality, whereby all respondent was promised that was meant for academic purposes only.

# FINDINGS

Table 1 summarizes demographic information of the respondents involved in this research data. Division of respondents was based on gender, age and education. The sample size was 368 from which the distribution was recorded in percentage and frequencies. All respondents were assured that their identities would be kept anonymous and data would be used for academic research analysis only.

## Table1: Particulars of the Respondents

|  |  |  |
| --- | --- | --- |
| **Particulars** | **N** | **%** |
| **Gender** |  |  |
| Male | 280 | 76.1 |
| Female | 88 | 23.9 |
| **Age (years)** |  |  |
| 20 – 30 | 191 | 51.9 |
| 31 – 40 | 129 | 35.1 |
| 41 – 50 | 48 | 13 |
| **Education** |  |  |
| Form four | 236 | 64.1 |
| Form six | 91 | 24.7 |
| Bachelor | 9 | 2.4 |
| PhD | 2 | 0.1 |

**Source:** Data Analysis (2024)

Based on findings presented in Table1, it is observed that respondents were of different kinds with different characteristics. This donates that the sample was neither skewed nor biased. In terms of gender, 76.1% were male and females were composed of 23.9%. In this regard, females were under represented due to the type of topic under the study. With regards to age, the sample included people of different age groups. For instance, there were 51.9% of respondents between 20-30 years- an internet active generation, 35.1% between 31-40 years and 13.0% between 41-50 years. With regards to education, the sample included all individuals with different levels of education with an exception of primary school leavers.

## Multiple Regression Assumptions

## Normality test

Normality test is a method of data assessment used to know which analysis method will be used. This study used IBM SPSS tools for data analysis. After running the data into SPSS descriptive statistics, the data were found to be highly statistically significance by <0.001. Scholars recommended that if p-value (significance value) is less than significance level (Alfa, α), the data is said to be statistically significant but not normally distributed. The set Alfa value for this study was 0.05. Since 0.001 is less than 0.05, the data are not normally distributed. This non-normally distributed data was analyzed by the test known as non-parametric test.

## Correlation Analysis

In order to test the hypotheses, the researcher performed a non-parametric test by using bivariate correlation. A bivariate correlation is a test for variable relationships which aims at looking of the effect of change of one variable under hypothesis to another variable. Table 4 shows the correlation matrix of factors under test. As it may be seen, six elements were compared, namely: transaction processing (TP), perceived usefulness (PU), security and control (SC), perceived ease of use (PEU), intention to adopt crypt currencies (IA) and the perceived challenges and risks (CR).

## Regresion analysis

Regression analysis is a statistical method of testing the relationship between dependent (outcome) variable and the independent (covariate) variables. This study applied ordinal regression method because the data were in a Likert scale. The (model fit) relationship between outcome and covariate variables is said to fit well if it is less than the significance level of 0.05 in this case. The significance for model fitting was <0.001 which indicated that the model was fitting well to the data set. Also, the goodness of fit found under chi- square was 0.584. Since this value is greater than Alfa, this indicates that the model was fitting well to the data set. In addition, the results indicated that the sample data was a representative of the whole population.

Table 2 shows hypothesis correlation results. As it can be seen, the perceived ease of use had positive association on the perceived usefulness. The perceived ease of use and the perceived usefulness had positive association on the intention to use crypt currencies. Moreover, transaction processing had positive association to both perceived usefulness and ease of using crypt currencies. Furthermore, the perceived security and control had positive relationship to both the perceived ease of use and the perceived usefulness. Finally, risks and challenges of adopting crypt currencies showed no significant to both perceived usefulness and ease of using crypt currencies.

## Table 2: Crypto currency adoption Hypotheses correlation results

|  |  |  |  |
| --- | --- | --- | --- |
| Variable relationship | Correlation coefficient | p-value | Remarks |
| Perceived ease of use to perceived usefulness | 0.983 | <0.001 | Accepted |
| Perceived ease of use to the intention to adopt | 0.143 | 0.006 | Accepted |
| Perceived usefulness to intention to adopt | 0.141 | 0.007 | Accepted |
| Transaction processing to perceived usefulness | 0.150 | 0.004 | Accepted |
| Transaction processing to the perceived ease of use | 0.174 | <0.001 | Accepted |
| Perceived security and control to perceived usefulness | 0.143 | 0.006 | Accepted |
| Perceived security and control to perceived ease of use | 0.400 | <0.001 | Accepted |
| Risks and challenges to perceived usefulness | 0.068 | 0.194 | Rejected |
| Risks and challenges to perceived ease of use | 0.030 | 0.560 | Rejected |

**Source:** Data Analysis (2024)

Table 2 shows hypothesis correlation results. As it can be seen, the perceived ease of use had positive association on the perceived usefulness. The perceived ease of use and the perceived usefulness had positive association on the intention to use cryptocurrencies. Moreover, transaction processing had positive association to both perceived usefulness and ease of using cryptocurrencies. Furthermore, the perceived security and control had positive relationship to both the perceived ease of use and the perceived usefulness. Finally, risks and challenges of adopting cryptocurrencies showed no significant to both perceived usefulness and ease of using cryptocurrencies.

## Table 3: Crypto currency adoption Hypotheses correlation results

|  |  |  |  |
| --- | --- | --- | --- |
| Variable relationship | Correlation coefficient | p-value | Remarks |
| Perceived ease of use to perceived usefulness | 0.983 | <0.001 | Accepted |
| Perceived ease of use to the intention to adopt | 0.143 | 0.006 | Accepted |
| Perceived usefulness to intention to adopt | 0.141 | 0.007 | Accepted |
| Transaction processing to perceived usefulness | 0.150 | 0.004 | Accepted |
| Transaction processing to the perceived ease of use | 0.174 | <0.001 | Accepted |
| Perceived security and control to perceived usefulness | 0.143 | 0.006 | Accepted |
| Perceived security and control to perceived ease of use | 0.400 | <0.001 | Accepted |
| Risks and challenges to perceived usefulness | 0.068 | 0.194 | Rejected |
| Risks and challenges to perceived ease of use | 0.030 | 0.560 | Rejected |

**Source**: Data Analysis (2024)

## Analysis of Research Objectives

As it was stated earlier, the main objective of this study was to examine factors that impact the intention to adopt crypt currencies in Tanzania. In order to achieve this general objective, the researcher divided it into three specific objectives, whose findings are presented in the subsequent sections.

## Roles of crypt currencies in Tanzania

The roles of crypt currencies were analyzed based on the usefulness, ease of use, transaction processing, security and control of crypto currency assets. Figure 6 shows results of the perceived usefulness of crypt currencies in Tanzania. On average, 80% of the respondents agreed that crypt currencies are useful. The usefulness lies on factors such as faster transactions, alternative source of currency, international money transfer, time serving and making the harassment free transactions. This result agrees with the study done by different scholars (Jonker, 2018, Nadeem *et al*., 2021).

In finding out if crypto currency technology fintech is an ease to use technology, the researcher raised five factors whose results are presented in Table 5. It was found that, 81% of the respondents thought using crypto currency is easy. This easiness was found in learning and understanding, user friendly platforms and less effort involved in using cryptocurrency platforms such as digital wallets and exchange services. The researcher’s results agreed with the result concluded by Nuryyev *et al.* (2020) and Nadeem *et al.* (2021).

## Table 4: The role of crypt currencies in the perceived usefulness

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Factor | Strongly Agree (%) | Agree (%) | Don’t Know (%) | Disagree (%) | Strongly Disagree (%) | Total (%) |
| Cryptocurrency is the ease to use financial technology | 33 | 48 | 10 | 4 | 5 | 100 |
| Learning and understanding cryptocurrency phenomenon is easy | 34 | 50 | 6 | 6 | 4 | 100 |
| Cryptocurrency interaction platforms are user friendly | 34 | 48 | 8 | 4 | 6 | 100 |
| It is easy to remember the functions of cryptocurrency systems | 33 | 47 | 7 | 7 | 6 | 100 |
| I perceive that cryptocurrencies can be used at less effort | 30 | 50 | 8 | 9 | 3 | 100 |

## Source: Data Analysis (2024)

The role of crypt currencies in Tanzania was also evaluated based on transaction processing elements. The results were summarized in Table 4. From the table, 81% responses agreed that crypt currencies have roles to accomplish in transaction processing. These roles include money transfer all over the world, transfer of even a very small portion of money, transfer and withdrawal of money at low cost and ease transactions. The result of this study in transaction processing was similar to those of Nadeem *et al.* (2021).

## Table 5: Role of crypt currencies in transaction processing

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factor** | **Strongly Agree (%)** | **Agree (%)** | **Don’t Know (%)** | **Disagree (%)** | **Strongly Disagree (%)** | **Total** |
| **%** |
| Cryptocurrencies enable me to transfer money instantly all around the world | 22 | 59 | 8 | 5 | 6 | 100 |
| Cryptocurrencies enable me to transfer even very small fraction of money | 28 | 52 | 7 | 11 | 2 | 100 |
| Cryptocurrencies enable me to transfer and withdraw money at low cost | 28 | 55 | 11 | 5 | 1 | 100 |
| Cryptocurrencies such as Bitcoin enable me to easily transact money | 20 | 59 | 12 | 5 | 4 | 100 |

**Source:**Data Analysis (2024)

Finally, the researcher looked on the security and control features of cryptocurrencies. The results were presented in Figure 5. It was observed that 81% of respondent consider cryptocurrency peer-to-peer network to enables users to make secure transactions. This is due to use of hashing and encryption (Ayeswarya, 2021). Also, 80% of respondents agreed that crypt currencies found in permissioned (private) blockchain are more secured than that found in the permission less (public) blockchain. These private coins such as Monero are anonymous and untraceable (CMC, 2021). The last factor looked by researcher was a user control of cryptocurrency assets. In view of that, 81% responded that crypt currencies facilitate harassment free transactions due to owner of crypto currency assets being able to access it anytime, anywhere and transfer any amount (Ammous, 2018).

## Challenges of adopting crypt currencies in Tanzania

Oxford University Press (2021) defined the term challenge as a new or difficult task that tests someone's ability and skill. The result from Figure 8 shows that 84% of respondents accepted that crypt currencies came with a challenge of being a new gateway for illegal business such as money laundering and human trafficking. This was the same as the study by Jafari *et al*. (2018) and Philemon (2020).

## Risks of Adopting Crypt currencies to Financial and Banking Ecosystem

Considering Table 6 which shows two major risks of adopting cryptocurrencies to the financial and banking ecosystem in Tanzania. These risks are hacker’s attack on cryptocurrency wallets and government loss in financial control due to speculations. Among the respondents, 81% agreed that cryptocurrency wallets are facing high risk of hacker’s attack. These attacks include malware, man in the middle, phishing and deny of service. The results was supported by several studies including (Jain et al., 2017; Global Legal Research, 2018 & Reddy, 2019). Furthermore, 71% agreed that government may lose financial control due to speculative nature of cryptocurrency as a business. This was evidenced in China (Dniprov *et al*., 2019). Cryptocurrencies such as Bitcoin are said to bespeculative business because there is no central authority which controls prices. Price controls itself due to demand and supply. Until now, only one country known as El Salvador has accepted Bitcoin as legal tender (Oxford Analytica, 2021).

## Table 6: Risks of Adopting Cryptocurrencies.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factor** | **Strongly Agree (%)** | **Agree (%)** | **Don’t Know (%)** | **Disagree (%)** | **Strongly Disagree (%)** | **Total (%)** |
| Private keys stored in digital wallets are susceptible to hacker’s attack. | 35 | 46 | 9 | 8 | 7 | 100 |
| Virtual currencies may cause government to lose financial control due to speculations | 33 | 39 | 10 | 9 | 9 | 100 |

## Source: Data Analysis (2024)

## The Intention to Adopt Cryptocurrencies in Tanzania

After going through all specific objectives, the researcher wanted to know how individual respondents think on the intention to adopt cryptocurrencies fintech. Table 8 is the presentation of user intention to adopt cryptocurrencies. Despite of the involved risks and challenges, 75% of the responses showed the intention to use cryptocurrencies to fulfil various roles such as making online purchase, doing speculative business, using it as alternative source of currency and making international money transfer.

## Table 7: Users Intention to Adopt Cryptocurrencies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Factor** | **Strongly Agree (%)** | **Agree (%)** | **Don’t Know (%)** | **Disagree (%)** | **Strongly Disagree (%)** | **Total (%)** |
| I intend to use cryptocurrency such as Bitcoin as the alternative source of currency | 29 | 45 | 11 | 7 | 8 | 100 |
| I prefer to use cryptocurrency for speculation trading | 31 | 48 | 8 | 6 | 7 | 100 |
| I intend to use cryptocurrency such as Bitcoin for online purchases | 28 | 53 | 7 | 6 | 6 | 100 |
| I prefer to use cryptocurrency for international money transfer | 31 | 46 | 10 | 6 | 7 | 100 |
| I prefer using crypto currency as a mode of exchange | 29 | 44 | 17 | 5 | 5 | 100 |

**Source:** Data Analysis (2024)

# CONCLUSIONS

The study concludes that security gaps, risks and challenges are among the factors that hinders cryptocurrencies from being used as a legal tender in Tanzania. Also, the decentralized and anonymous features of cryptocurrencies such as Bitcoin raises control questions. All these increases difficulty for the governments and central banks to authorize this technology. Such a situation causes low penetration due to lack of reliable, affordable and open education.Moreover, the study concluded that cryptocurrencies have various roles to fulfill. These roles include instant international money transfer, speculative business, time serving and online purchase platform. There are some members of the nation who are trading, marketing and using cryptocurrencies regardless of the security gaps, risks and challenges. In view of that, the government of Tanzania should think of introducing blockchain technology syllabus particularly the cryptocurrency education. This may be taken as a specialization just like any other specialization.

Furthermore, the study concludes that since the global is in the move to accommodate cryptocurrencies in their monetary policies, Tanzania should get ready for this. The readiness shall include studies on risks, security gaps and challenges that cryptocurrencies have to the existing financial and banking ecosystems. Also, the Bank of Tanzania may think of reviewing its monetary Acts, policies and regulations in order to reflect the current need. This study contribute knowledge to the growing literature of cryptocurrencies in Tanzania which is useful to scholars and other stakeholders.

## Recommendations

Since crypt currencies such as Bitcoin has proven to be useful and easy to use, the researcher recommends to the Bank of Tanzania to carefully review its foreign exchanges policy in order to accommodate this new financial technology.

Since knowledge on cryptocurrencies is not satisfactory in the community, the study recommends that detailed researches and constructive discussions need to be done before Bank of Tanzania considers introducing this monetary system in Tanzania. Also, public education should be provided via televisions, radios, and social medias in order to reduce the knowledge gap. Moreover, syllabus on blockchain technology particularly cryptocurrencies should be introduced in all levels of education.

Since some countries have recognized the usefulness of cryptocurrencies, the study recommends to the Bank of Tanzania to recognize this financial technology and give room for reviewing the existing monetary policy.

The study recommends to the government of Tanzania to come up with cryptocurrency based in Tanzania. The study suggests a name to be TanCoin.

The study further recommends to the government of Tanzania to ensure the availability of facilitating infrastructures such as reliable and affordable internet service to all. This will decrease digital divide among rural and urban communities.

The study recommends to the government of Tanzania to strengthen financial cyber security and forensic department in order to help in solving digital transactions challenges.

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