AN EXPLORATORY STUDY ON CENTRALIZED CRYPTOCURRENCY AS AN ALTERNATIVE TRANSACTIONAL SYSTEM IN NIGERIA

SAIDU SANI ALHAJI

UNIVERSITI SAINS MALAYSIA

2022

AN EXPLORATORY STUDY ON CENTRALIZED CRYPTOCURRENCY AS AN ALTERNATIVE TRANSACTIONAL SYSTEM IN NIGERIA

by

SAIDU SANI ALHAJI

Thesis submitted in fulfilment of the requirement for the degree of Doctor of Philosophy

September 2022

ACKNOWLEDGEMENT

First and foremost, I would like to express my enormous gratitude to Allah S.W.T *Alhamdulillah*, for His guidance, kindness and blessings to spare my life through this great journey and finally making it a reality. May Allah's peace and blessings be upon our noble Prophet Muhammad S.A.W, our role model and teacher in all aspects of human endeavours who we follow his footstep up to the last hour *insha-Allah*.

I wish to specially thank sincerely my supervisor, Professor Dr. Fauziah Md. Taib for her dedication, professionalism and patience in guiding me through my academic activities until the completion of my thesis. She is always willing to attend, assist me and share her research skills and experience during several meetings and discussions throughout this challenging journey despite her tied schedules. It is only Allah that can adequately reward her for these enormous contributions in this world and in the Hereafter, Amin.

I am also indebted to my family who gave their support in my academic pursuit especially my father and mother who has been supportive and prayerful to making this journey a reality. It is worth mentioning the sacrifices made by my wife Farida Adamu, my children Salamatu, Yazir, Yazid and Khadija who misses a lot from me as a result of this struggle. So also to other family members who are too numerous to mention May Allah give them long life to reap from this effort and sacrifices.

My profound gratitude to Tertiary Education Trust Fund and my great institution Adamawa State University, Mubi for providing a conducive atmosphere to undertake this great task likewise my teaming friends and colleagues especially those in my work place and my PhD colleagues like Bashir Mahmud, Nusirat, Ibrahim Hassan Walama and my Head of Department Dr. Ormin Koholga, may Allah help them all in their aspirations.

May Allah pave a way for my humble contribution to benefit more researches in this growing field of Accounting and finance so that we ultimately achieve the true purpose for the betterment of mankind.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Page

LIST OF ABBREVIATIONS

AEO	Authorized Economic Operators
ARDL	Autoregressive Distribution Lag
CAC	Cyberspace Administration of China
CBDC	Central Bank Digital Currency
DMO	Debt management
EUCB	European Union Central Bank
GDP	Gross Domestic Product
GNDI	Gross National Disposable Income
GRP	gross regional product
HDI	Human Development Index
HLS	Household Living Standard
IDM	Innovation Diffusion Model
IIF	Institute of International Finance
IMF	International Monetary Fund
MIIT	Ministry of Industry and Information Technology
NITDA	Nigerian Information and technology Development agency
SCT	Social Cognitive Theory
SSA	sub-Saharan African
TAM	Technology Acceptance Model
TBV	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UN	United Nation
UTAUT	Unified Theory of Acceptance and Use of Technology
WDI	World Development Indicator
WEO	World Economic Outlook

LIST OF APPENDICES

KAJIAN PERINTIS MENGENAI MATA WANG KRIPTO BERPUSAT SEBAGAI SISTEM TRANSAKSI ALTERNATIF DI NIGERIA

ABSTRAK

Kajian ini bertujuan untuk menilai operasi sistem urus niaga rizab fiat dan pecahan semasa dan kemungkinan menerima pakai mata wang kripto berpusat sebagai sistem urus niaga alternatif yang harus pergi jauh dalam meminimumkan peningkatan kos sara hidup, kemelesetan yang konsisten, krisis ekonomi yang berulang, peningkatan besar dalam hutang dan keadaan hidup isi rumah yang memusnahkan dan ketidakstabilan ekonomi umum. Teori kuantiti wang, teori monetari moden dan teori bersatu penerimaan dan penggunaan teknologi digunakan menyokong penggunaan pembolehubah kajian dan juga meluruskan dapatan kajian. Kajian ini menggunakan kaedah penyelidikan mod campuran penerangan berurutan di mana data kajian dikumpul melalui kaedah pengumpulan data kuantitatif dan kualitatif. Kajian ini menggunakan Nigeria sebagai kawasan kajian yang dipilih menggunakan teknik persampelan bertujuan. Data kuantitatif dikumpul daripada penerbitan data Bank Dunia, data IMF dan laporan Bank Pusat Nigeria mengenai pembolehubah monetari dan mikroekonomi bagi tempoh kajian 1973-2020. Sebaliknya, maklumat kualitatif dikumpul menggunakan soalan temu bual separa berstruktur daripada peserta sampel. Data dan maklumat yang dikumpul daripada sumber kuantitatif dan kualitatif dianalisis menggunakan MINITAB 16 da n AtlasTi. Kajian mendapati sistem monetari mengembang memberi kesan negatif terhadap keadaan kehidupan isi rumah dan kestabilan ekonomi. Kajian itu juga mendapati bahawa dan peningkatan besar dalam hutang am bersama-sama dengan peningkatan yang tidak terkawal dalam bekalan wang mempunyai pengaruh negatif dan ketara ke atas kestabilan ekonomi Nigeria. Sebaliknya, kajian mendapati bahawa akibat utama sistem rizab fiat dan pecahan semasa ialah peningkatan kos sara hidup, penciptaan kredit swasta dan peningkatan hutang am yang sangat menggalakkan. Selaras dengan penemuan tersebut, kajian mengesyorkan bahawa penggubal dasar khususnya bank-bank tertinggi di negara-negara perlu memberi perhatian yang lebih untuk mengawal peningkatan berterusan bekalan wang yang sebahagian besarnya disebabkan oleh pengganda wang dan penciptaan wang oleh bank swasta yang boleh memudaratkan keadaan kehidupan isi rumah. dan kesejahteraan ekonomi umum negara. Kajian itu sebaliknya, mengesyorkan bahawa terdapat keperluan untuk sistem urus niaga terkawal kerajaan bantuan blockchain yang harus diguna pakai sebagai sistem urus niaga pusat yang mampu mengawal peningkatan kos sara hidup, membasmi penciptaan wang persendirian dan meminimumkan peningkatan yang memberangsangkan dalam hutang am yang akhirnya akan menyediakan peraturan dan mekanisme kawalan yang betul bagi semua transaksi yang akan membantu dalam meminimumkan cucian wang, pengelakan cukai dan pembiayaan pengganas.

AN EXPLORATORY STUDY ON CENTRALIZED CRYPTOCURRENCY AS AN ALTERNATIVE TRANSACTIONAL SYSTEM IN NIGERIA

ABSTRACT

This study is aimed at assessing the operation of the current fiat and fractional reserve transactional system and the possibility of adopting an centralized cryptocurrency as an alternative transactional system that should go a long way in minimising rising cost of living, consistent recession, repeated economic crisis, overwhelming increase in debt and devastating household living condition and general economic instability. The quantity theory of money, modern monetary theory and unified theory of acceptance and usage of technology was used support the study variables usage and to also straighten the study findings. The study adopts a sequential explanatory mixed mode method of research where the study data was collected through quantitative and qualitative means of data collection. The study uses Nigeria as the study area which was selected using purposive sampling technique. The quantitative data was gathered from publish World Bank data, IMF data and Central Bank of Nigeria report on t he monetary and microeconomic variables for the study period 1973-2020. On the hand, the qualitative information was collected using a s emi-structured interview questions from the sampled participants. The collected data and information from quantitative and qualitative sources was analysed using MINITAB 16 a nd AtlasTi. The study found that expansionary monetary system has a negative effect on t he household living condition and economic stability. The study also found that and overwhelming increase in general debt together with uncontrolled increase in money supply has a negative and significant influence on the economic stability of Nigeria. On the other hand the study found that the major consequences of the current fiat and fractional reserve system are rising cost of living, private credit creation and ooverwhelming increase in general debt. In-line with the findings, the study recommends that Policy makers specifically apex banks of countries should put more attention on controlling persistent increase of money supply which is majorly caused by money multiplier and money creation by private banks that could be detrimental to household living condition and the general economic wellbeing of countries. The study on the other hand, recommends that there is need for a blockchain aided government controlled transactional system that should be adopted as a central transactional system that could be capable of controlling rising cost of living, eradicating private money creation and minimizing the overwhelming increase in general debt which will ultimately provide proper regulation and control mechanism of all transaction that will help in minimizing money laundry, tax evasion and terrorist financing.

CHAPTER 1

INTRODUCTION

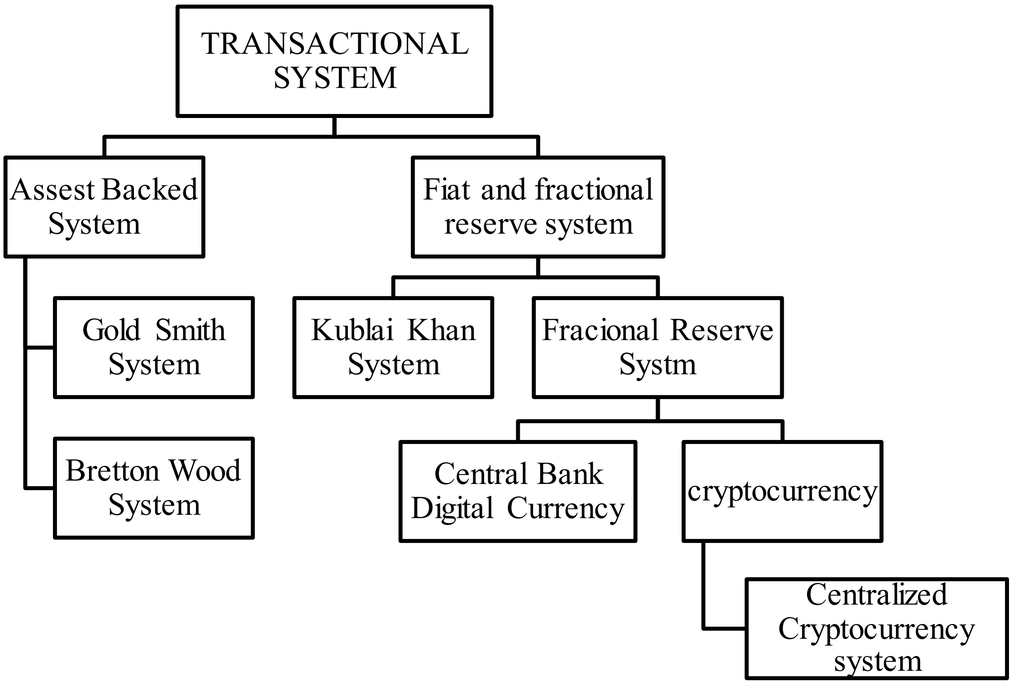
1.1 Chapter Overview

The history of human being cannot be complete without relating it to transactional system where exchange of goods and services is conducted between owner or provider of goods and services and the users of such goods and services. Transaction started from barter system where people exchange goods for goods as a means of satisfying each other wants which lasted for some time. Thereafter the barter system was replaced with precious asset system of transaction as a result of its indivisibility and inconveniences experienced by the party engaging in such a transaction. Under the precious asset transactional system parties in the transaction uses gold and silver in exchange of goods and services. The selection of these assets was made as a result of it general acceptance by everybody, divisibility and store of value. These qualities make the gold and silver standard effective and efficient for a long period of time, but it was not sustained because of the limited production of the asset and the increase in population.

The need for expansion of money production brought in Kublai Khan fiat money system where the great king of Yuan Dynasty invented a paper money made from a leave of a tree with a seal by the government which makes it a legitimate instrument through guarantee and promise of value. The paper money production was at the early stage based on the vault of silver and copper reserve but later as a result of population and expenditure increase the silver and copper reserve production of money was abandoned. Government resulted to printing money out of nothing and this caused high inflation and the system was abandoned and people reverted to barter and gold standard.

The continuation of trading with gold and silver which need to be stored in a safe vault ushered in Goldsmith's banking system. Under this system merchant keeps their gold with Goldsmith for safe keeping and a receipt were issued as evidence of the gold kept with the bank. The general population trusted the bank which makes them have confidence in the receipt issued and this makes people to accept such receipt in transactions and the quantity of gold on t he receipt will be claimed by t he other party. Considering the acceptance of the receipt, Goldsmith started to issue out an anonymous receipt and this makes the transaction easy with the receipt and gold remains for long time in the bank without withdrawal. Goldsmith started to give out the gold as loan which will earn him additional income and because of the trust and acceptance of the receipt he then decided to issue out fictitious receipt as loan to people and this is the bases of our modern banking system.

The population and expenditure increase which makes the pure gold standard unsustainable as money supply cannot be increased at wish since it was attached to increase in real asset. This necessitated countries to look for an alternate system which gives birth to Bretton wood system. Major countries in the world come into agreement in Bretton wood to tie all other currencies to US dollar and the dollar should be tied to gold because America at that time gathered significant part of the world gold and many countries cannot expand the money as a result of gold scarcity. This agreement brought in World Bank and International Monetary Fund (IMF) to coordinate and regulate the system as per the laid down policies and regulation. In recent years there are emerging means of transaction such as cryptocurrency and Central Bank Digital Currency (CBDC) to replace the current monetary system because of the series of problems being associated with the system as presented in the figure 1.1 below



Source: Adapted from (Wadsworth, 2018)

Figure 1.1. Structure of transactional system

1.2 Background to the Study

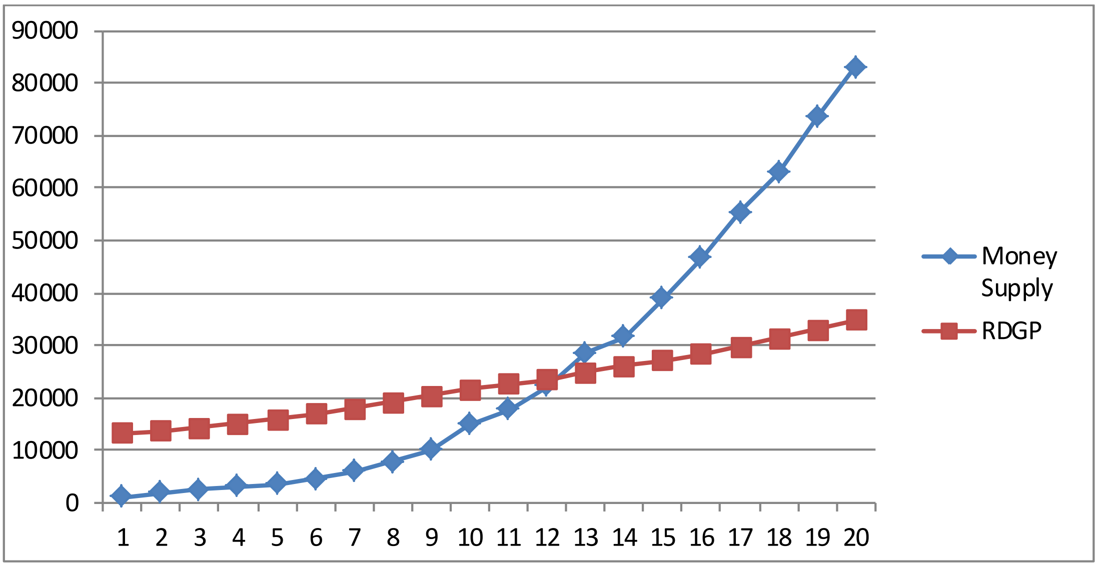
Nations around the globe have continues to focus on de signing a societal oriented strategies that will improve the social and economic wellbeing of its citizens. I nternational policies, security policies, fiscal and monetary policies targeted on i mproving the nation's economy and household living conditions may all contribute to stability. It is important to highlight that a well-designed and structured policy contributes significantly to improving the living conditions of countrymen and the overall economic well-being of the country, whereas a flawed policy is detrimental to both the economy and the countrymen. To maintain economic stability and improve people's living conditions, it is necessary that government at all levels rigorously study each policy before daring or establishing it.

The fiscal and monetary policies are the most important policies that countries focus on since they are the government's primary weapons for boosting economic activity and deciding people's living standards. These policies are revised on a regular basis to keep up with changing public expectations and changes in the country's economic operations. It is thought that having a comprehensive economic policy will stimulate national economic growth and, as a result, improve people's living conditions (Mesagan & Shobande, 2016). As a result, national policymakers must concentrate on and capture topics in policy development that will improve the businesses, better security and decent life for the overall population.

A stable economy may be attained by implementing a stable fiscal strategy that governs and manages daily dealings both inside and outside the nation. The role of monetary policy in a country's transactional activities, particularly with respect to ensuring business related contracts efficiency and effectiveness cannot be over emphasized. The job of developing monetary policy that would offer a conducive atmosphere to basic actors in transactions to participate in their routine activities with minimal difficulty was entrusted with the nation's apex banks (Igoni, Onwumere & Amaewhule, 2020). Controlling the money supply is critical in national policy, and it has gotten a lot of attention throughout the years since it was found to have a huge impact on people's living conditions and the economy's health. The Central Bank utilizes several measures to manage the money supply in opposition to this since an unregulated money supply will impair the nation's economic activity and cause suffering for the people.

Central banks have done their best to control and regulate the money supply (money in circulation) through policies, but the reality is that countries are experiencing an excess money supply, which has resulted in inflation and a serious deterioration in household standard of living as argued by m onetary theorist. Inflation is primarily produced by a rise in the money supply especially when there is no equivalent increase in actual economic aspect. The most difficult task for policymakers in any system is to strike a balance between inflation and recession, because too much money in circulation creates inflation, while too little money triggers recession (Nikhil & Deene, 2021). This is how most monetary systems work, because the primary weapon for controlling the amount of money in circulation is interest rate management, which may either stimulate or deject borrowing or loan taking.

The money supply issue started to escalate significantly after the collapse of Bretton wood system in 1973 w hen the world currency was untied from gold backing and the fiat money together with fractional reserve system came to being (Forrest, Ying, & Gong, 2018). The collapse of Bretton wood which was caused by increased in government expenditure, population and the limited production of gold which cannot be expanded by t he nations (Scott-Smith & Rofe 2017). Thereafter countries opted for fiat and fractional reserve system as operated in Kublai Khan and Goldsmith systems where the oversupply of money was witnessed in the economy which is not in line with the real economic output as shown in figure 1.2.



Source: World Bank data 2020

Figure 1.2. Money supply during fiat and fractional reserve system in Nigeria

Many economic indicators have changed since the fall of the Bretton Woods agreement, particularly in the monetary area, where the money supply rise has been continuous and even greater than economic growth, indicating an overstock of money that might lead to economic instability (Palley, 2015). Prior to the breakdown of Bretton Woods, researchers and economists like as Warner (2014) and Liew (2019) believed that nations' money supply was reasonably regulated due to restrictions on m oney production, as new money could only be generated in proportion to the country's real asset (Gold, silver in the case of Bretton wood system). T he system, however, was not able to withstand the rise in the population of the countries, as well as the massive growth in government spending that could not be met with asset-backed money due to the asset's finite supply (Wernicke, 2018). As a result, governments abandoned asset-backed money in favor of a fiat and fractional reserve monetary system akin to Kublai Khan's and Goldsmith's.

The central government creates money through their respective central banks under the fiat and fractional reserve systems, in the form of paper money that is not backed by any asset but rather a mere promise of value that serves only as a guarantee by the government that such a paper will be redeemable for goods and services in all transactions (Gross, & Siebenbrunner, 2019). As in the Yuan Dynasty, this allows the authorities to issue new money whenever they choose. Government-created fiat money has been suggested to be a key factor to countries like the United States' high cost of living (Peie, Mohamed, Yusoff, Joreme & Rosli, 2017). Following the Bretton Woods agreement's breakdown in the United States, inflation swept the country, and the dollar's value plummeted to the point that a person would need a wheelbarrow full of cash to purchase a loaf of bread. Under fractional reserve banking, money production has persisted over time, with both a better and a worsening dimension especially in Nigeria.

The current system was necessitated as a result of customers keeping deposits with the bank as in Goldsmith and such banks takes advantage of such deposit by giving out such deposit as loan to other parties who are looking for funds to finance their routine business activities. To have a better understanding of fractional reserve system we need to align its operation to the Goldsmith system in 16th century where it operated in the form of a bank to keep the transactional precious asset (gold) of the merchant. The goldsmith provides receipt for holders of such gold stating his custodian of the asset, and because he is a trustworthy individual, the merchant offers such receipts to other parties in return for goods and services, and the third party uses the receipt to collect the gold in Goldsmith's vault.

This process makes the gold to stay for some time without withdrawal by the owner(s), then Goldsmith decided to give out this gold as loan to other customers to the extent of giving a fictitious receipt as loan to loan seekers and this makes him doubled the income of the principal amount together with the interest. Consistently, this is a direct replica of the happenings in the modern banking system where private banks multiply/create money from the customers deposits as loans to the third party because these deposit remain with them for a long time and the cheques and draft are acceptable means of exchange so individual banks now has the power to create money from thin air as in Goldsmith system (Warner, 2014).

As argued by (Werner, 2018), the excess supply of money is primarily instigated by c ommercial banks credit creation implying that a greater share of the utilized money in most economies is primarily created by c ommercial banks. This is supported by t he Bank of England report (England, 2016), According to the report, more than 95 pe rcent of the money used by publ ics and trades in most nations is in the form of bank guarantees at commercial banks, with only about 5% of the money in circulation created by t he government through apex banks such as the Bank of England. This situation exists in most countries around the world as private banks provide loans, they create new money in the form of numbers (bank deposits) that appear in bank accounts and such is happening in Nigeria.

Commercial banks under fractional reserve system use customers deposit and the money multiplier principle which gives them opportunity to have huge ideal resources in their vault. The high demand of funds by na tions and household couple with the pressure from commercial banks together with soften method of assessing the loan have contributed to high indebtedness of households and nations that are majorly living on de bt as shown (Nigerian National Breau of Statistics 2021). Experts have argued that if all debt of nations will be settled there would be very little or no m oney in circulation because every money in ones' wallet is a debt of someone and this make money lose it value as the debt money created through money multiplier (lending and relending of deposits) steals it value from the actual customer deposit (Tashtamirov, 2013). This scenario has contributed to overwhelming national and household debt and at no poi nt individuals and nations will be free from debt under such system in Nigeria. There is this popular saying that "debt is used to enslave the society and the weapon of such slavery is interest rate and naturally the funds to service such debt as the interest comes from inflation especially in developing countries like Nigeria. Actually, most of the economic indices follow earning circles of households and nations but inflation which is the product uncontrolled borrowing does not segregate between earning capacity of individuals that could be the reason for major economic challenges in Nigeria as argued by (Amassoma, Sunday & Onyedikachi, 2018).

The economic theorist identifies the major qualities of money in line with its purposes as: means of transaction, unit of account, store of value and the value of incentive as suggested in (Tasca, 2016). Money has to be seen as a medium of exchange or a method that should eludes the problem of coincidence of the wants in the barter system before people can trade with. The medium should also be: Identifiable in the sense that any time sales of goods and services are to be made for money it should be identified at the point of receipt as the frequent usable money will be easily identifiable; Money must have a capacity of being transferred to other party without loss of value; Money should be durable as an asset that will stay a test of time.

The second quality of a good m oney is the unit of account in which the unit of measure of a money should be used to ascertain transactions related variables which should be divisible as its component will be segregated into parts which should be equal to the original value; money should also be fungible as any unit should viewed as the same as any other units with no change in value; money should also be countable and subject to mathematical operations. The unit of account should be scarce because one of the major killers of currencies has been excess supply which has resulted in price inflation.

The Store of value is among the good quality of money as suggested by Tasca, (2016) is should be an asset that has the possibility of being protected, salvaged and traded at a later time, the asset should be probably utilized when repossessed with less costs or damages. Finally, good money should allow users to have a utility of reward by handling cost related matter with less resistance and with complete degree of choice so as to maximize satisfaction by the users. However, the current monetary system seems not to have fulfilled this characteristic because of jurisdiction or technical boundaries especially in the digital era. A critical adherence to these qualities will guarantee sustainable economic stability that will be void of persistent rising cost of living, economic recessions and crises, unemployment, excess supply of money and uncontrolled debt.

The general perception by most of the economic actors in the world is that loans is a viable means of straightening or boosting entrepreneurship that will go a long way in improving the economic position of the country as entrepreneurs has good ideas but have no money to implement those ideas. It was assumed that the loan (new money created) will be used by those entrepreneurs to fund their business activities and stimulate the country's economic stability through the purchase of production machinery and equipment which will be used in the production of the output that could be consumed and exported. The loan could also be used in generating employment by investing in small and medium size enterprises (SMEs) and subsequently the generated income could be used in debt servicing and payment of tax to government. However, such scenario is not in practice for majority of it. Rather most of the created money was used to buy the pre-existing assets especially housing and financial assets.

Naturally, if the created money by t he private banks could be invested in SMEs and other real economic activities that are geared toward wealth creation and employment generation that will yield income which will stimulate economic activities that aid stability in the whole economy. T he challenges faced by countries especially developing countries like Nigeria as a result of the current system could have been minimized or even eliminated and the frequent financial crises wouldn't have been reoccurring. However, in reality this only applies to the insignificant percentage of the bank lending today as documented by Howells, (2000) that only a little portion of the created money (loans) were directly used to finance production or any form of economic activity that can contribute to the output and real GDP of the economy, while majority of bank lending finances the purchase of pre-existing assets, especially property.

The money creation by pr ivate banks has escalated especially with the advancement in the technology where the use of physical cash in transactions especially large transactions are no l onger visible. Instead of the fictitious deposit/receipt as in the case of Goldsmith such evidence does not need to be there for effective money creation. This is because money values in recent times are represented in figures (digital cash) originated by t he private banks and as such is easily transferable to a third party without necessarily meeting with each other and this makes the money creation so easy. Table 1.1 illustrates the money creation especially in the recent years where cashless transaction is on the edge.

Table 1.1

Money creation process (10%reserve requirement and initial deposit of N100,000)

	Bank A				Bank B		
Assets	**N**	**Liability**	**N**	**Assets**	**N**	**Liability**	**N**
Reserve	10, 000	Deposit	100,000	Reserve	9, 000	Deposit	90,000
Loan	90,000			Loan	81.000		
	Bank C				**Bank D**		
Assets	**N**	**Liability**	**N**	**Assets**	**N**	**Liability**	**N**
Reserve	8100	Deposit	81,000	Reserve	7,290	Deposit	72,900
Loan	72, 900			Loan	65,610		

Table 1.1 shows the process of money creation by t he commercial banks which indicates that banks could create up N 308,610 (90,000+81,000+72,900 +65,610) out of the initial deposit of N100,000 and in just four (4) stages of transaction. This will continue up t o 9th stage as capture in money multiplier as such the purchasing power in the economy has increase without any proportionate increase in real economic activities of the country. The said increase through credit creation is tantamount to creating inflation especially in real asset like housing. This is the scenario in many countries which Nigeria is inclusive especially with the adoption cashless system of transaction where the computer-generated figures are used in transactions. The cashless system will definitely erode away the 5% or less government created money in the economy. The credit creation in this manner has witness an immense increase in recent year with the digitalization of transaction in most counties in line with technology advancement (Adu, 2016).

The 21st century evolution of digital world and Nigeria adoption of digital economy has brought a tremendous change in almost all transactional activities in the country. The transformation in monetary system keeps changing with the pertain of challenges in the natural and artificial behavior of the world and this has caused a series of shifts from one transactional system to another starting from batter system, gold standard, Kublai khan fiat, Goldsmith, Bretton wood, fiat and fractional reserve system (Khurramov, 2020). The present monetary system (fiat and fraction reserve system) has moved in line with the changes and the advancement in technology which ushered cashless system and digital currencies. A lot of new systems are now being operated as an alternate to the main transactional system and the most popular among them is cryptocurrency and Central Bank Digital Currency (CBDCs) transactional models.

Developed and developing economies around the globe such as Sweden, China, Germany, Finland, United State of America and England among other are on the pilot stage of testing the applicability of the central bank digital currency. CBD was necessitated because declining usage of physical cash and the digitalization of most economies where many none cash system was established Singh, 2020). The currency is viewed as secured digital instrument that has a store of value with official unit of account. The currency is categorised into real CBDCs that would be held and used by individual household in make their routine transaction of payments and store of value; and wholesale CBDCs that are used as bank reserve exchanges, interbank settlements and security trading.

The currency could straighten cross-border transactions which are now facing numerous of challenges under the current monetary system of lack of transparency, limited operating hours and bureaucracy of settlement system, limited interoperability, costly correspondence service and legacy of digital systems (Engert & Fung, 2017). There are also domestic benefits that that could be achieved under CBDCs which include provision of real time transactions, lower maintenance and operational expenditure, reduction of money laundry, high transparency provision of new window for emerging economic areas. However, key consideration should be made before adopting a CBDC by a ny country which include safety of central bank retail payment system, universal accessibility, financial inclusion through provision of a secured offline options, constant improvement on c yber security and its integral part, alignments with other systems both locally and internationally, privacy of its operations, control of double spending to curtail excess money supply. The implementation should be started with converting private banks reserves to digital currency and learning from the operation of cryptocurrency.

Seemingly, with the technology revolution which was shifted from automation (3.0) to industry 4.0 of cyber and physical integration where people capability is supported with advanced technology like blockchain. The industry 4.0 evolutions has brought a lot of innovation in the transactional system of almost all the countries in the world and this makes digital and virtual currency to be gaining popularity. Cryptocurrency is the most common among those currencies which utilizes blockchain technology in its operation as all transaction has to be recorded on the distributed ledger through making each transaction into blocks with high powered securities of cryptography and a decentralized approval of the transactions (ur Rehman, Salah, Damiani, & Svetinovic 2019). A cryptocurrency is an electronic cash system that works on a peer-to-peer basis to allow users to transfer payments without the use of a financial intermediary or central source, they are currently unregulated and unbacked by a ny government, these currencies are classified as virtual currencies.

However, Cryptocurrency are still considered as fiat money since its expansion is not aligned or backed by a ny real asset. The main changes brought by the system are that their transactions are operated and maintained on a public blockchain ledger by a decentralized population of record keepers. The transaction is verified by n etwork nodes and is entered in the blockchain system. This distributed network has been designed to avoid any double-spending errors as all transactions are traceable and verifiable on t he blockchain which provides an indisputable record (Joo, Nishikawa & Dandapani 2019). The security protocols in the electronic financial ledger prevent transaction details from being removed or altered, thus creating a complete record of all transactions involving the currency (Afzal, 2019). Although, the currency uses the technology to operate, conduct, coordinate and regulate transactions in an easy and profitable way to the parties involved. It has been argued that the currency does not have intrinsic value and the prices is based on speculation, its operation is decentralized without state or any authority approval. These features make the currency vulnerable to critical economic issues like bubble burst, cybercrime, money laundry, tax evasion and terrorist financing (Yunin & Shevchenko, 2019).

Though, many changes had occurred in the transactional system, the system still witness series of problem which was not squarely addresses as it keeps on revolving from one system to another. The batter system is confronted with challenge of indivisibility and discrepancy in the people demand as the goods that one party has in exchange of another good cannot be the same with the other party needs who has what the other person is looking for and this makes a lot of inconveniences which ushered in gold standard with the expectation that the problem will be eradicated.

As shown in Figure 1.1, the gold standard and Bretton Woods system, which are classified as real asset backed systems, were successful in solving the major problem of the barter system by us ing gold and other precious asset or asset backed currency in transactions, bringing economic stability to the world and reducing household hardship. This situation could not be sustained due to the continual growth in the population combined with an increase in the nation's budget, necessitating a system overhaul. Because the asset is restricted in production and cannot be enlarged at will by every nation in accordance with its demand and characteristics, governments have chosen for a fiat monetary system, which is an expansionary monetary system.

The fiat and fractional reserve system were adopted by c ountries in their quest to increase the money supply in line with the population and expenditure increase. This method allows a government to raise its money supply whenever it sees fit without having to consider any assets as a backstop for such creation, making money expansion simple and consistent, as shown in Figure 1.2. The fiat fractional reserve system even though was successful in the area of money expansion, but it has been associated with far more challenges than the previous systems as a result of money creation which are not barked by a ny real asset and this have caused mess to most of the economies in the world (Rozeff, 2010). The system is considered as the primary source of many nations' massive increases in money supply, which were not accompanied by a comparable rise in actual economic activity that would contribute to the country's real growth and better living conditions for its citizens, as seen in Figure 1.2.

The cryptocurrency transactional system has made a significant effort to eliminate private bank money creation, which will naturally solve the oversupply of money and inflation. It has also been able to curtail interest rate manipulation, which is believed to have played a significant role in compounding the world financial crises experienced under the fractional reserve system, as pointed out by T urner

(2014). Because openness and traceability are essential in the system's operation, it has the potential to generate a high level of confidence among parties involved in the transaction. However, the system's greatest difficulty is that it is not regulated or controlled by a ny government, which might lead to unlawful transactions that are harmful to nations' overall well-being.

Table 1.2

Analysis of World Transactional Systems

System	**Nature of operation**	**Challenges /consequences**
Early centuries Gold Standard	Exchange of gold or silver for goods and service	Limited production of Gold
12th Century Kublai Khan fiat money	Government backed Paper Money	High government expenditure
17th Century Goldsmith banking System	Bank that keeps gold, lending such gold as loan and thereafter lending fictitious receipts	Over supply of money which caused inflation as individual created additional money
19th Century 1944 Bretton-wood System	The agreement that tied American dollar to gold and all other country's currencies was tied to dollar.	Increasing expenses of American whose dollar is tied to gold cause high inflation in the country and they reverted to fiat money
19th century Fiat and Fractional Reserve system	This is a system where government create money out of nothing without asset backing and private banks continues with such creation by multiplying the customers' deposit.	Money can be created for personal or political interest which has caused inflation, uncontrolled money creation by private banks and compounding interest
20th Century Cryptocurrency transactional system	cryptocurrency is a decentralized virtual currency operated on t he blockchain technology with a peer-to-peer ("P2P")	Speculative price, bubble burst, unregulated transaction which may lead to tax evasion, money laundry and terrorist financing
21st Century Central Bank Digital Currency	Intangible form of money that are convertible to cash at fixed per rate value and no i nterest will be paid or earned on s uch account	Vulnerability to cybercrime, high startup cost, offline transaction coverage and technology failure.

Source: Authors analysis from literature (2020)

It is clear form this analysis especially under fractional reserve system there exist an abuse of agency theory and conflict of interest between the principal (government) and the agent (private banks) where the private banks who focuses mainly on t he credit creation from customers deposit with the aim of maximizing wealth at the detriment of the government focus of stimulating economic activities that will lead to sustainable economic growth and better living condition of the citizens (Boatright, 1992). The abuse of relationship was formalized by government relegating the power of creating new money in the economy to private/commercial banks and the control of money in circulation is no longer attainable by the central government and this caused a great confusion in the economic policy of most countries in the world.

Conclusively, the world is in the dilemma of how to address the issues that relate to the monetary and transactional system and there is high concern and need of having a stable monetary system which will be void of the major issues faced by the present systems especially with respect to money supply and money creation which are believed to be the major cause of inflation, asset bubble, inequality, environmental degradations, compounding interest and instability in the whole economy. Therefore, the study conclude that researchers policy makers at all level need to look for system that will have less problem in order to reduce the current monetary issues faced by m any countries in the globe especially with the advancement in technology which may compound the problem.

1.3 *Problem Statement*

Monetary policy plays a substantial role in the realization of the economic stability and better living condition of people because every human or nation partakes in one transaction or the other in the day to day activities. It is believed that a stable and efficient monetary system is capable of fostering economic stability through actual economic growth by a means of inflation control, poverty reduction, creation of employment opportunities, housing affordability, inequality control, crime reduction and provision of sustainable economic, environmental and social atmosphere that will trigger better living standard of people and the economy at large.

The stakeholders at all levels need to focus on t he possibilities of having a stable monetary system that could better the economic activities of the nation and the living standard of the household. Various groups such as Positive Money, Monetary Movement for Justice and some scholars like Warner, Milton Friedman (1960), James Tobin (1987), John Kay (2009), Laurence Kotlikoff (2010), Joseph Huber and James Robertson in their book Creating New Money (2000) and other stakeholders have attributed the challenges and confusion in the world transactional system to these key factors which are presented in Table 1.3 and is present under one system or the other.

Table 1.3

Transactional system challenges

Challenges	**Transactional and monetary systems**		
	Asset backed	Fractional Reserve	Cryptocurrency
Fiat Money	Less	High	High
Credit creation	Low	High	Low
Inflation	Low	High	Low
Interest rate manipulation	less	High	Less
Transaction regulation	High	High	Less
Expansion option	Less	High	Less

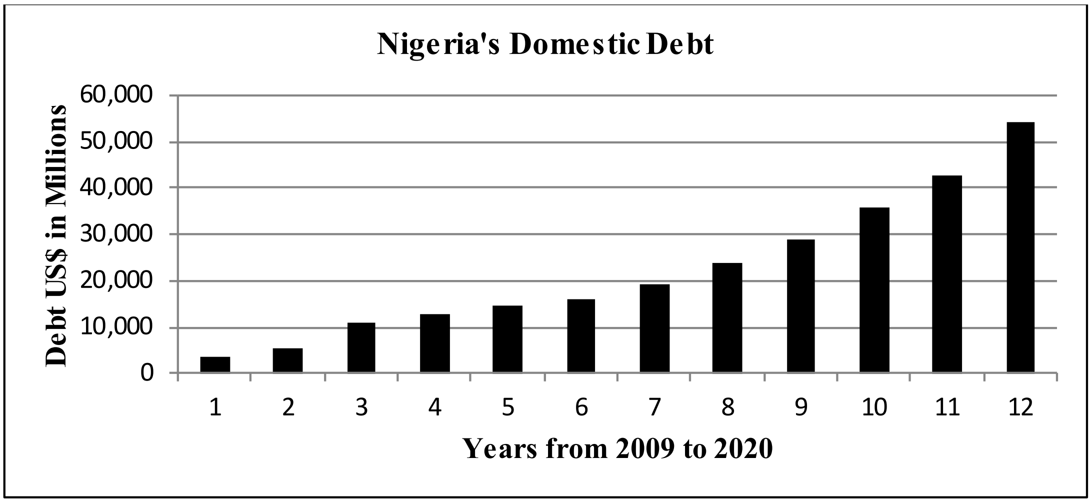
Source: Researcher's analysis from various literatures (2019)

The monetary and transactional systems that existed in the past and even the present systems as shown in table 1.3 has faced and is facing a series of challenges which cut across fiat money, credit creation, uncontrolled inflation, interest rate manipulation, unregulated transactions and the growth need and expansion.

Table 1.3 suggest that the most effective and efficient system is real asset monetary system as it has done away with the major obstacles of all the system except non-expansion issue as a result of limited production of the precious asset on which money creation is based on. Whereas the current fractional reserve system was characterised with overwhelming issues that are associated with fiat money, money creation, inflation, and compounding interest. On the other hand, the cryptocurrency system has fully handled the asset-backed system issues and has also curtailed the key encounters under the fractional reserve system; but, because its decentralization and none proper supervision by s pecific state it could do a way with vulnerability and uncontrolled transactions.

The fractional reserve system through money creation has caused a devastating increase in the world, national and household debt as the only tool for lending control is interest rate. Institute of International Finance (IIF) Global debt monitor of 14th August 2021 publ ished that the world debt with pandemic reaches its peak of $277 Trillion which is 365% of the total world GDP in 2020 a nd increase on $253trillion about 322% of the world GDP in 2019. This implies that most countries debts have gone beyond their GDP.

According to the Debt management (DMO) report of 2019 i ndicates that a substantial part of Nigeria's public borrowing comes from the domestic debt accounting to 85%, while only 15% represents external debt in recent years. This has threatening economic implications as private banks are in control of economic reality of the country and central government can have a little control on money in circulation. It glaring from the data that the debt profile of Nigeria will continue to increase at an uncontrolled pace, especially in the era of COVID 19 pandemic which has crippled most of economic activities that could generate fund for government and individuals. This argument is supported by i nternational Monetary Fund (IMF) data which shows that Nigeria's debt profile has maintained a persistent increase for the past ten (10) years w ith 3,816 in 2009 a nd 54,071 US$ million in 2020 a s shown in figure 1.3



Source: Debt Management Office (2021)

Figure 1.3. Nigeria domestic debt from 2009 to 2020.

The Figure shows a danger of an inconsistent increase of domestic public debt in Nigeria which could be detrimental to real economic activities that foster economic growth and stability. On the other total debt profile of Nigeria comprising of both domestic and external stands at 87,239.12 million US$ as at December 2020 with federal government 43,514.96 million US$ and state takes 10,864.17 million US$ which is alarming considering the economic reality and the capacity to repay such loans and this makes each and every citizen to be indebted with N217,000 from the federal government debt. Considering the rising debt and its consequences on the economic stability and development couple with its effect on the household living condition, this study will investigate the consequential effect of increases public debt on economic stability of Nigeria.

Similarly, statistics from Nigeria bureau of statistics also shows a steady increase in interest rate from 7% in 1973 to the highest of 24% in 2002 thereafter the interest experienced a slow decrease to almost 15% in 2019. Therefore, this has contributed to consistent increase in debt and uncontrolled money in circulation. According to World Bank data, Nigeria is a lower-middle-income emerging economy which is still struggling with the impact of inflation as the country experienced a rise of almost 11.4% annual inflation as against the gross domestic product (GDP) growth of 2.2% in 2019. It has established by world bank data (2020) that only 8% of the borrowed money were invested in businesses outside the financial sector while almost 51% was geared towards commercial or residential property (mortgages on office buildings and homes) and this has inflated the housing prices while the remaining percentage went to financing the routine activities of the government and household which has no capacity of yielding income that will be used in servicing the debt.

Therefore, it is more accurate to describe modern banks as entities that create new money to finance the purchase of pre-existing assets which is detrimental to the economic wellbeing of the country and the household living condition. This support the arguments that large proportion of the created money by private banks are not invested in real economic activities which have reasonable impact on the country growth. The debt based economic system in which there is no clear cut difference between actual money and debt has resulted to denial of financing to real sector like SMEs which are could have the capacity of creating 80% of the required jobs in any nation.

Since transactional system has profound influence on c ountry's money supply and subsequently a great consequence on ge neral economy. Therefore, in order to curtail the further escalation of the problem especially with the cashless transactions, there is a n eed to have a t ransactional model that will minimize the challenge of limited production in the case of real asset backed system; curtailing the private money creation by pr ivate bank, inflation and interest rate manipulation in the case of fractional reserve system; unregulated transactions in the case of cryptocurrency. Consequently, the system should be controlled and regulated by t he central authority in order to provide a better living condition to the household and real economic growth for the country. The alternate system should capture the technological advancement in its operation especially with regards to security, traceability and transparency of transactions which are expected to build a high trust in the parties partaking in the transactional activities.

The proposal aligns with the preparations by m any countries of moving to central bank digital currency (CBDC) which is being stationed to replace the current fiat and fractional reserve system. prominent among the movement were United States assembly proposal of central bank digital currency as published by S &P Global Market Intelligence on 10th June 2021, the recent adoption of "Beijing's advanced blockchain industrial system" by C hina's Ministry of Industry and Information Technology (MIIT) and Cyberspace Administration of China (CAC) as published by south china morning post of 10th June 2021, the Nigerian Information and technology Development agency (NITDA) artificial intelligence and blockchain technology digital economic system among others. There are also recent moves by many countries toward having a unified currency of common interest and with quest of many nations venturing into cryptocurrency transactional system in recent years (Japan, Singapore, Iran, China, Pakistan, South Africa and Venezuela among others).

1.4 Research Objectives

The main objective of this study would be to assess the possibility of having an alternative transactional system that should go a long way in minimising the household hardship and economic instability. The specific objectives of the study should be:

i. To examine the effect of expansionary monetary system on the household living condition in Nigeria

ii. To evaluate the consequences of increased money supply and persistent increase in public debt on economic stability of Nigeria.

iii. To assess the perception of major stakeholders (regulators, technologists, academicians, Islamic scholars and legal practitioners) on the challenges of the fiat and fractional reserve transactional system.

iv. To assess the perception of major stakeholders on a doption of a centralized cryptocurrency as an alternate transactional system.

1.5 Research Questions

In line with the research problems identified under various transactional systems, the study intends to provide answers to the following research questions.