INTERNATIONAL RESEARCH JOURNAL OF HUMANITIES AND INTERDISCIPLINARY STUDIES
(Peer-reviewed, Refereed, Indexed & Open Access Journal)
DOI : 03.2021-11278686 ISSN : 2582-8568 IMPACT FACTOR : 5.828 (SJIF 2022)

Digital Rupee: An Overview

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DOI No. 03.2021-11278686 **DOI Link ::** https://doi-ds.org/doilink/03.2022-29846614/IRJHISIC2203033

Abstract:

The present research paper aims at analyzing the concept of digital currency, its functioning, its pros and cons and how it differs from cryptocurrency as well. The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. "Faceless, Paperless, Cashless" is one of professed role of Digital India. Promotion of digital payments has been accorded highest priority by the Government of India to bring each and every segment of our country under the formal fold of digital payment services. The Vision is to provide facility of seamless digital payment to all citizens of India in a convenient, easy, affordable, quick and secured manner. The announcement of the launch of digital rupee will enable the achievement of this mission by boosting digital economy.

Keywords: *Digital currency, Cryptocurrency, Blockchain, Digital economy*

Introduction:

Union Finance Minister Nirmala Sitharaman announced the launch of digital rupee by the Reserve Bank of India. The digital rupee is a Central Bank Digital Currency (CBDC) that will be launched in 2022-23. This initiative will give a boost to the digital economy. Digital currency is a form of currency that is available only in digital or electronic form. It is also called digital money, electronic money, electronic currency, or cybercash. Digital currencies do not have physical attributes and are available only in digital form. Transactions involving digital currencies are made using computers or electronic wallets connected to the internet or designated networks. In contrast,

physical currencies, such as banknotes and minted coins, are tangible, meaning they have definite physical attributes and characteristics. Transactions involving such currencies are made possible only when their holders have physical possession of these currencies.

Digital currencies have utility similar to that of physical currencies. They can be used to purchase goods and pay for services. They can also find restricted use among certain online communities, such as gaming sites, gambling portals, or social networks.

Digital currencies also enable instant transactions that can be seamlessly executed across borders. For instance, it is possible for a person located in the United States to make payments in digital currency to a counterparty residing in Singapore, provided they are both connected to the same network.

CBDC is the same as currency issued by a central bank but takes a different form than paper or polymer. It is sovereign currency in an electronic form and it would be appeared as a liability i.e. currency in circulation on a central bank's balance sheet. It would be exchangeable at par with cash. It is an electronic record or digital token of a countries currency which fulfills the basic functions as a medium of exchange, unit of account, store of value and standard of deferred payment.

In comparison with existing form of money, the CBDC can offer benefits to users in terms of liquidity, scalability, acceptance, ease of transactions with anonymity and faster settlement. The adoption of CBDC will improve and make it easier for people to use with its supporting infrastructure provided by the government.

Objectives of the paper:

i) To analyse the concept of digital rupee.

ii) To differentiate between cryptocurrency and digital currency.

Types of Digital Currencies:

Digital currency is an overarching term that can be used to describe different types of currencies that exist in the electronic realm. Broadly, there are three different types of currencies:

Cryptocurrencies:

Cryptocurrencies are digital currencies that use cryptography to secure and verify transactions in a network. Cryptography is also used to manage and control the creation of such currencies. Bitcoin and Ethereum are examples of cryptocurrencies. Depending on the jurisdiction, cryptocurrencies may or may not be regulated.

Virtual Currencies:

Virtual currencies are unregulated digital currencies controlled by developers or a founding organization consisting of various stakeholders involved in the process. Virtual currencies can also be algorithmically controlled by a defined network protocol. An example of a virtual currency is a

gaming network token whose economics is defined and controlled by developers.

Central Bank Digital Currencies:

Central Bank Digital Currencies (CBDCs) are regulated digital currencies issued by the central bank of a country. A CBDC can be a supplement or a replacement to traditional fiat currency. Unlike fiat currency, which exists in both physical and digital form, a CBDC exists purely in digital form. England, Sweden, and Uruguay are a few of the nations that are considering plans to launch a digital version of their native fiat currencies.

Advantages of Digital Currencies:

They have fast transfer and transaction time:

Because digital currencies generally exist within the same network and accomplish transfers without intermediaries, the amount of time required for transfers involving digital currencies is extremely fast. As payments in digital currencies are made directly between the transacting parties without the need for any intermediaries, the transactions are usually instantaneous and low-cost. This fares better compared to traditional payment methods that involve banks or clearinghouses. Digital-currency-based electronic transactions also bring in the necessary record keeping and transparency in dealings.

They do not require physical manufacturing and cannot be soiled:

Many requirements for physical currencies, such as the establishment of physical manufacturing facilities, are absent for digital currencies. Such currencies are also immune to physical defects or soiling that are present in physical currency.

They can ease implementation of monetary and fiscal policy:

Under the current currency regime, the Fed works through a series of intermediaries—banks and financial institutions—to circulate money into an economy. CBDCs can help circumvent this mechanism and enable a government agency to enable disburse payments directly to citizens. They also simplify the production and distribution methods by obviating the need for physical manufacturing and transportation of currency notes from one location to another.

They can make transaction costs cheaper:

Digital currencies enable direct interactions within a network. Even costs involving digital currency transactions between different networks are relatively cheaper as compared to those with physical or fiat currencies. By cutting out middlemen that seek economic rent from processing the transaction, digital currencies can make the overall cost of a transaction cheaper.

Disadvantages of Digital Currencies:

They do not solve all storage and infrastructure problems:

While they do not require physical wallets, digital currencies have their own set of

requirements for storage and processing. For example, an Internet connection is necessary as are smartphones and services related to their provisioning. Online wallets with robust security are also necessary to store digital currencies.

They are susceptible to hacking:

Their digital provenance makes digital currencies susceptible to hacking. Hackers can steal digital currencies from online wallets or change the protocol for digital currencies, making them unusable. As the numerous cases of hacks in cryptocurrencieshave proved, securing digital systems and currencies is a work-in-progress.

They can be volatile in value:

Digital currencies used for trading can have wild price swings. For example, the decentralized nature of cryptocurrencies has resulted in a profusion of thinly capitalized digital currencies whose prices are prone to sudden changes based on investor whims. Other digital currencies have followed a similar price trajectory during their initial days. For example, Linden dollars used in the online game Second Life had a similarly volatile price trajectory in its early days.

What is cryptocurrency?

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on blockchain technology—a distributed ledger enforced by a disparate network of computers. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

- A cryptocurrency is a form of digital asset based on a network that is distributed across a large number of computers. This decentralized structure allows them to exist outside the control of governments and central authorities.
- Experts believe that blockchain and related technology will disrupt many industries, including finance and law.
- The advantages of cryptocurrencies include cheaper and faster money transfers and decentralized systems that do not collapse at a single point of failure.
- The disadvantages of cryptocurrencies include their price volatility, high energy consumption for mining activities, and use in criminal activities.

Cryptocurrencies are digital or virtual currencies underpinned by cryptographic systems. They enable secure online payments without the use of third-party intermediaries. "Crypto" refers to the various encryption algorithms and cryptographic techniques that safeguard these entries, such as elliptical curve encryption, public-private key pairs, and hashing functions.

Blockchain:

Central to the appeal and functionality of Bitcoin and other cryptocurrencies is Blockchain technology. As its name indicates, Blockchain is essentially a set of connected blocks or an online ledger. Each block contains a set of transactions that have been independently verified by each member of the network. Every new block generated must be verified by each node before being confirmed, making it almost impossible to forge transaction histories.1The contents of the online ledger must be agreed upon by the entire network of an individual node, or computer maintaining a copy of the ledger.

Experts say that Blockchain technology can serve multiple industries, such as supply chain, and processes such as online voting and crowdfunding. Financial institutions such as JPMorgan Chase & Co. (JPM) are testing the use of Blockchain technology to lower transaction costs by streamlining payment processing.

Advantages of cryptocurrencies:

i) Cryptocurrencies represent a new, decentralized paradigm for money. In this system, centralized intermediaries, such as banks and monetary institutions, are not necessary to enforce trust and police transactions between two parties. Thus, a system with cryptocurrencies eliminates the possibility of a single point of failure, such as a large bank, setting off a cascade of crises around the world, such as the one that was triggered in 2008 by the failure of institutions in the United States.

ii) Cryptocurrencies promise to make it easier to transfer funds directly between two parties, without the need for a trusted third party like a bank or a credit card company. Such decentralized transfers are secured by the use of public keys and private keys and different forms of incentive systems, such as proof of work or proof of stake.

iii) Because they do not use third-party intermediaries, cryptocurrency transfers between two transacting parties are faster as compared to standard money transfers. Flash loans in decentralized finance are a good example of such decentralized transfers. These loans, which are processed without backing collateral, can be executed within seconds and are used in trading.

iv) Cryptocurrency investments can generate profits. Cryptocurrency markets have skyrocketed in value over the past decade, at one point reaching almost $2 trillion. As of Dec. 20, 2021, Bitcoin was valued at more than $862 billion in crypto markets.

v) The remittance economy is testing one of cryptocurrency's most prominent use cases. Currently, cryptocurrencies such as Bitcoin serve as intermediate currencies to streamline money transfers across borders. Thus, a fiat currency is converted to Bitcoin (or another

cryptocurrency), transferred across borders and, subsequently, converted to the destination fiat currency. This method streamlines the money transfer process and makes it cheaper.

Disadvantages of cryptocurrencies:

i) Though they claim to be an anonymous form of transaction, cryptocurrencies are actually pseudonymous. They leave a digital trail that agencies such as the Federal Bureau of Investigation (FBI) can decipher. This opens up possibilities of governments or federal authorities tracking the financial transactions of ordinary citizens.

ii) Cryptocurrencies have become a popular tool with criminals for nefarious activities such as money laundering and illicit purchases. The case of Dread Pirate Roberts, who ran a marketplace to sell drugs on the dark web, is already well known. Cryptocurrencies have also become a favorite of hackers who use them for ransomware activities.

iii) In theory, cryptocurrencies are meant to be decentralized, their wealth distributed between many parties on a blockchain. In reality, ownership is highly concentrated. For example, an MIT study found that just 11,000 investors held roughly 45% of Bitcoin's surging value.

iv) One of the conceits of cryptocurrencies is that anyone can mine them using a computer with an Internet connection. However, mining popular cryptocurrencies requires considerable energy, sometimes as much energy as entire countries consume. The expensive energy costs coupled with the unpredictability of mining have concentrated mining among large firms whose revenues running into the billions of dollars. According to an MIT study, 10% of miners account for 90% of its mining capacity.

v) Though cryptocurrency blockchains are highly secure, other crypto repositories, such as exchanges and wallets, can be hacked. Many cryptocurrency exchanges and wallets have been hacked over the years, sometimes resulting in millions of dollars worth of "coins" stolen.

vi) Cryptocurrencies traded in public markets suffer from price volatility. Bitcoin has experienced rapid surges and crashes in its value, climbing to as high as $17,738 in December 2017 before dropping to $7,575 in the following months. Some economists thus consider cryptocurrencies to be a short-lived fad or speculative bubble.

What is the difference between digital currency and cryptocurrency?

1. Digital currencies, the electronic form of fiat money, can be used in contactless transactions between parties - like paying electronically from your bank account to someone else's. All online transactions involve digital currency, once you withdraw that money from the bank or from an ATM, that digital currency gets transformed into liquid cash. Whereas, Cryptocurrencies, or digital coins, is a store of value that is secured by encryption. These

digital coins are all privately owned and created (using advanced blockchain technology) and have not yet been regularised in most countries.

2. Now, digital currencies do not need encryption, but all users need to secure their digital wallets and banking apps with strong passwords and biometric authentication wherever possible to minimise chances of hacking and theft. The same applies to debit and credit cards which are key to these digital currency transactions. Whereas, Cryptocurrencies are protected by strong encryption and to be able to trade in crypto, users need to have a bank account with money in it and this digital currency can be exchanged via an online exchange to get cryptocurrency of the corresponding value.
3. When it comes to regulation, digital currencies are backed by a central authority, in India, which is going to be the RBI, which regulates both liquid cash and digital currency transactions. In the case of cryptocurrencies, it is a decentralised system and is not regulated by a central authority. However, all crypto transactions are recorded in a decentralised ledger that is available for all.
4. On the stability front, digital currencies are stable and easier to manage when it comes to transactions because they are widely accepted in the global market. Crypto, on the other hand, is very volatile with rates rising and falling almost regularly. Digital currency transaction details are available only to the people involved in it, the sender and the receiver, and the bank. Crypto transaction details are available to the public via the decentralised ledger.

Conclusions:

The digital rupee might be legal tender whereas cryptocurrencies will not be treated as legal tender in India any time in the near future. Manoj Dalmia, Founder and Director, Proassetzsaid that the digital rupee will be different from Bitcoin, Ethereum and other cryptocurrencies in the sense it will be backed by the government. Secondly, having an intrinsic value on account of government backing, the digital rupee will be equivalent to holding a physical rupee equivalent," In short, CBDC is just the digital form of the legal currency used in the country and is not a private currency.

The Fundamental difference between the digital rupee and cryptocurrency will be that the digital rupee, being issued by RBI will most likely be Centralised. On the other hand, Cryptocurrencies are decentralised and cannot be controlled by a single entity, said Vinshu Gupta, Founder and Director, Nonceblox Blockchain Studio. Cryptocurrency is privately created and it is a very big threat to the country's macroeconomic and financial stability, RBI Governor Shaktikanta Das said on Thursday. People investing in cryptocurrencies are doing so at their own risk and they should be aware that these have no underlying assets, "not even a tulip", RBI governor Shaktikanta Das had said.

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