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Impact of Digital Currencies in the Global Economy

Munir Hassan[1]

[1]*Business Administration and Public Leadership Johnson C. Smith University Charlotte's Premier Independent Urban University 100 Beatties Ford Road Charlotte, NC, United States 28216.*
Email: mhassan@jcsu.edu

Abstract

The main objective of the paper is to present the history and performance of digital currencies. The paper is discussed in three sections. In the first section, the history and definition of digital currency are presented, followed by a brief review of literature. In the third section, the different types of digital currency that have come into vogue are outlined. The main conclusion is that digital currencies are becoming popular in recent times in different countries and have a bright future.

Keywords: Bitcoin, Digital currencies, Sub types of digital currencies.

1. Introduction

The main objective of the paper is to present the history and performance of Digital Currencies. The paper is discussed in three sections. In the first section the history and definition of Digital Currency are presented followed by a brief Review of Literature. In the third section the different types of Digital Currency that have come in vogue are outlined.
Conclusions are given in the end.
The various aspects of Digital money are that

- it is also known as electronic money or e-money,
- It is a digital representation of traditional fiat currency, such as the US dollar or the euro, or a digital representation of an asset, like gold or a specific commodity and
- typically stored and transacted electronically, using digital devices such as computers, smartphones, or other electronic devices. Further it allows for quick and convenient transactions, as well as seamless online payments

As stated by one author, the evolution of digital currencies is a testament to humanity's quest for innovative means of transacting value in the digital age. For the first money exchange for any commodity the invention of gold and precious metal coins was initiated. Through centuries money has evolved, and so did money exchanges (from gold coins to currency notes). In recent times the concept of Cryptocurrency challenged every other system that existed before it. This has transformed physical coins and notes into a form of money that exists purely in digital form. It is observed that the traditional currencies are bound by geographical limitations, making cross-border transactions inconvenient and costly. The concept of digital currency aimed to eliminate these intermediaries and facilitate instantaneous and borderless transactions. It was noted quite early that turning currency digital have some advantages namely, boost efficiency, transparency, and access, which will further require strong encryption to secure transactions especially over the internet. Some of the places where Digital currency may be recorded are on a distributed database on the internet, a centralized electronic computer database owned by a company or bank, within digital files or even on a stored-value card.

Digital currencies do exhibit properties like traditional currencies but also differ in some respects. They do not generally have a classical physical form of fiat currency historically that can be held in the hand, like currencies with printed banknotes or minted coins. The digital currency has physical form in an unclassical sense coming from the computer to computer and computer to human interactions and the information and processing power of the servers that store and keep track of money. This feature form allows nearly instantaneous transactions over the internet and vastly lowers the cost associated with distributing notes and coins. Further Digital currency may be used to buy physical goods and services, but may also be restricted to certain communities such as for use inside an online game.

Digital money can either be centralized, where there is a central point of control over the money supply (for instance, a bank), or decentralized, where the control over the money supply is predetermined or agreed upon democratically.

2. History of Digital Currency

In this section the history of Digital Currencies is presented.

2.1. Brief History of Digital Currencies

As for the history of Digital Currency it is noted that precursory ideas for digital currencies were presented in electronic payment methods such as the Sabre (travel reservation system). Further In 1983, a research paper titled "Blind Signatures for Untraceable Payments" by David Chaum introduced the idea of digital cash. In 1989, he founded DigiCash, an electronic cash company, in Amsterdam to commercialize the ideas in his research. However, it filed for Bankruptcy in 1998.

E-gold has been referenced as "digital currency" by both US officials and academia. It was first introduced in 1996 and expanded to several users before the US shut down in 2008. In 1997, using mobile phones Coca-Cola offered buying from vending machines. In 1998 PayPal launched its USD-denominated service. In 2009, bitcoin was launched, which marked the start of decentralized blockchain-based digital currencies with no central server, and no tangible assets held in reserve. Block chain based digital currencies also known as cryptocurrencies proved resistant to attempt by government to regulate them, because there was no central organization or person with the power to turn them off.

Origins of digital currencies date back to the 1990s Dot-com bubble. In 2006 another known digital currency service was Liberty Reserve which let users convert dollars or euros to Liberty Reserve Dollars or Euros, and exchange them freely with one another at a 1% fee. Several digital currency operations were used for Ponzi schemes and money laundering and were prosecuted by the U.S. government. Q coins or QQ coins, were used as a type of commodity-based digital currency on Tencent QQ's messaging platform and emerged in early 2005. Q coins were so effective in China that they were said to have had a destabilizing effect on the Chinese yuan currency due to speculation.

Cryptocurrency history is just a recent phenomenon. The first usage was observed in the 1980's and other digital currencies like Digi Cash and E-gold by David Chaum and Douglas Jackson were created later. It is only in 2000 that the real decentralized digital currency came to use. In 2008 cryptocurrency was invented by Satoshi Nakamoto. Bitcoin was the first cryptocurrency launched in 2008, due to a paper titled Bitcoin: A Peer-to-Peer Electronic Cash System. In this paper a decentralized digital currency payment without any involvement of any banks was discussed. The start of the Bitcoin block chain mining was known as the "genesis block". The ledgers for Bitcoin and Ethereum are considered public ledgers. Recent interest in cryptocurrencies has prompted renewed interest in digital currencies, with bitcoin, introduced in 2008, becoming the most widely used and accepted digital currency.

In science fiction stories, such as Neal Stephenson's "Cryptonymic" and Vernor Vinge's "Rainbows End." the idea of a digital form of currency was first explored.

Ecash and DigiCash (1989) are identified as the Early Digital Payment Systems. David Chaum's innovations laid the foundation for digital currency with systems like DigiCash, which introduced concepts of cryptographic protocols. The renowned cryptographer Hal Finney created Cyberbucks (1992) which is cited as an early attempt at creating a digital currency. E-Gold (1996) enabled users to hold gold-backed accounts, providing a bridge between physical assets and digital currency. PayPal (1998) emerged as Centralized Digital Currency and is considered as a Digital Wallet Revolution. It revolutionized online payments, allowing users to transact in various currencies securely and played a pivotal role in the e-commerce boom. The next landmark in the development of Digital Currency is the Birth of Cryptocurrencies. A few mentioned are:

Bitcoin: The Genesis of a Revolution (2008): Satoshi Nakamoto: The pseudonymous creator(s) of Bitcoin introduced the world to a decentralized digital currency through the whitepaper titled "Bitcoin: A Peer-to-Peer Electronic Cash System." Blockchain Technology: Bitcoin's innovation was not just the currency itself, but the underlying blockchain, which introduced a trustless, decentralized ledger. Some of the other Pioneering Cryptocurrencies and Altcoins are Litecoin (2011), Silver to Bitcoin's Gold created by Charlie Lee. Litecoin introduced the concept of faster block generation times and a different hashing algorithm, aiming to complement Bitcoin. Ethereum (2015), Smart Contracts and Dapps. Vitalik Buterin's Ethereum expanded the capabilities of blockchain by introducing smart contracts, enabling programmable, decentralized applications. Other developments are:

- Blockchain Technology Beyond Currency: Blockchain in Supply Chain and Logistics:
- Provenance and Transparency: Utilizing blockchain for supply chain management enhances traceability and transparency, combating issues like counterfeiting.
- Secure Patient Records: Blockchain ensures the integrity and security of electronic health records, allowing for seamless sharing among healthcare providers.
- Blockchain in Voting Systems: Enhanced Security and Transparency: Blockchain-based voting systems aim to revolutionize elections by ensuring immutable, verifiable records.

Different countries have adopted diverse stances on cryptocurrencies, ranging from acceptance and regulation to outright ban. Central Bank Digital Currencies (CBDCs): Many central banks are exploring or piloting CBDCs to enhance the efficiency of their monetary systems.

3. Review of Literature

The questions raised in this article by Jabbar are that Digital currencies consist of two or several factors, but the most important of them are the mechanism of technology, which is how the currency works and its electronic interior, and what are the ways of generating it and ways of trading it. The application process and the sign to which this currency is referred to, such as Bitcoin, Cardano, Dogecoin, Meta Mask or Monero, is known that each application has different features from the other. But the most important question is, will digital currencies exclude the dollar, or will the dollar remain steadfast despite the rise of new global powers like China and India?

In their article Anusha and Noah point out that since the creation of bitcoin in 2009, cryptocurrencies have exploded in popularity and are today collectively worth more than $1 trillion. Critics say a lack of oversight has contributed to volatility in the nascent industry, but regulators have begun to catch up. Meanwhile, many

governments are seeking to capitalize on the technology that powers cryptocurrencies by investing in their own digital currencies.

3.1. After Sinking, Cryptocurrencies Are Rising Again

In their Article Understanding controversies in digital currencies: a conceptual overview Daniel Bulin, Delia Popescu &Robert-Ionuț Dobre point out that digitalization and technology have significantly influenced global market trends and changed the way people interact with currencies and financial transactions (Koroma et al. Citation 2022). Both society and academia are showing increasing interest in the potential of these new transaction methods with alternative currencies (Larue et al. Citation 2022). Digital currencies function in decentralized networks and enable peer-to-peer transactions without intermediaries such as banks or payment service providers (Frankwitz Citation 2023). Cryptocurrencies and blockchain technology have met with strong resistance and criticism, often motivated by emotions or a superficial understanding of technology. These phenomena are generally characterized by resistance to change and blanket criticism without distinguishing between important aspects of the various cryptocurrencies and their underlying technologies (Porras and Daugherty Citation 2022). The rapid growth of digital currencies has raised a variety of ethical issues and presents legislators and financial sector companies with the particular challenge of finding a balance between promoting innovation and ensuring adequate consumer protection (Frankwitz Citation 2023).

They highlight the fact that cryptocurrencies are among the most significant unregulated markets in the world and pose a challenge in regulating illicit transactions such as the purchase of drugs and weapons, money laundering and terrorist financing (Mason et al., Citation 2021). They also point out that the lack of robust regulatory oversight exposes investors to risks, as illustrated by the dramatic collapse of Terra-Luna (Briola et al. Citation 2023; S. Lee, Lee, and Lee Citation 2023) and the FTX exchange (Conlon, Corbet, and Hu Citation 2023; Vidal-Tomás, Briola, and Aste Citation 2023). They state these cases highlight the need for stricter rules and enforcement mechanisms to protect consumers and improve market stability. To address these issues, regulatory initiatives such as the European Union Regulation on Markets in Crypto Assets (MiCA) (2023) have emerged, providing a structured framework for the regulation of digital assets. Governments worldwide must respond effectively to technological advancements in order to protect citizens' data and security (Porras and Daugherty Citation 2022).

There are several other articles related to digital currency but in this section only a few are presented.

4. Sub Types of Digital Currencies

In this section the various subtypes and major digital currencies are presented. Also, the advantages, disadvantages and future of digital currencies are outlined.

It is stated that Digital currency is a term that refers to a specific type of electronic currency with specific properties and is also a term used to include the meta-group of sub-types of digital currency. It is seen that there are many legal definitions of digital currency and the many digital currency sub-types. When the different possible properties are combined there exists an extensive number of digital currencies. It is observed that many governmental jurisdictions have implemented their own unique definition for digital currency, virtual currency, cryptocurrency, e-money, network money, e-cash, and other types of digital currency. Further, within any specific government jurisdiction, different agencies and regulators define different and often controversial meanings for the different types of digital currency based on the specific properties of a specific currency type or sub-type.

Virtual currency has been defined in 2012 by the European Central Bank as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community". The US Department of Treasury in 2013 defined it more tersely as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency".[20] The US Department of Treasury also stated that, "Virtual currency does not have legal-tender status in any jurisdiction." Cryptocurrency is a sub-type of digital currency and a digital asset that relies on cryptography to chain together digital signatures of asset transfers, peer-to-peer networking and decentralization. Traditional currencies are considered digital currency in some cases. Most of the traditional money supply is bank money held on computers. They are considered digital currency in some cases

The various types of major digital currencies that exist today are listed in this table:

Table 1. Some Digital Currencies.

	Year	Definition
Bitcoin (BTC)	2009	Block chain Technology was introduced.
Ethereum (ETH)	2015	This is a decentralized platform enabling smart contracts and the popularity of the cryptocurrency
Ripple (XRP)	2012	This is designed for fast, low-cost international money transfers and remittances.
Litecoin (LTC)	2011	This is known for its faster transaction confirmation.
Bitcoin Cash (BCH)	2017	The purpose is to improve scalability and transaction speed.
Cardano (ADA)	2017	Designed as a blockchain platform for the development of decentralized applications with a focus on security.
Polkadot (DOT)	2020	The purpose is to provide a multi-chain platform enabling interoperability between different blockchains.
Chainlink (LINK)	2017	The purpose is to provide real-world data to smart contracts.
Stellar (XLM)	2014	Designed as a platform for fast, low-cost cross-border transactions and token issuance
Dogecoin (DOGE)	2013	Purpose was created as a meme. It has gained popularity as a digital currency with a strong community

The various advantages of Digital currency are:

Convenience, Accessibility; Security; Cost Effectiveness; Speed and Accuracy; Transparency; Fast Transfer and Transaction Times; No Physical Manufacturing Required; Monetary and Fiscal Policy Implementation; Cheaper Transaction Costs; Decentralized and Acceptable around the world.

The disadvantages are:

Security risks, Technological Dependence; Privacy concerns; Limited Acceptance; Technical Complexity; Regulatory challenges; Storage and Infrastructure Issues; Hacking Potential; Volatile Value and Irreversibility.

5. Conclusions

The future of digital currency in 2025 is expected to be shaped by several key developments

Some major central banks around the world have looked into issuing their digital currencies. Some of the larger, more notable examples include the countries below. In China, The People's Bank of China (PBOC) has been testing the digital yuan, also known as e-CNY, in Chinese localities and Millions of Chinese citizens currently utilize the digital yuan, which is intended to be used for retail transaction.

As for Sweden, since 2020, Sweden's Riksbank has been testing the e-krona digital currency. The purpose for the creation of e-krona is to complement Sweden's diminishing use of currency and enable the public access to a safe and effective payment system. In the case of EU: A digital euro that may be issued by the European Central Bank (ECB) is being investigated for the use of retail transactions within the Eurozone. England: In the case of England, The Bank of England is exploring into the prospect of launching the Britcoin cryptocurrency so that The U.K.'s payment system would be backed by a digital currency, that could also reduce the nation's dependence on cash. Canada: The Bank of Canada has conducted research and consultations on the idea of creating a CBDC.

It is quite possible that there may be significant announcements by G7 or BRICS to establish a strategic cryptocurrency initiative. A second factor that may influence the future of cryptocurrency is that there will be a continued push for global adoption of cryptocurrencies, with more businesses and individuals integrating them into their daily travel. Further regulatory changes could evolve which could impact how cryptocurrencies are traded and used. Technological innovations and Market trends could influence the trade in cryptocurrencies. These insights suggest a dynamic and evolving landscape for digital currency soon.

Another opinion is that the future of digital currency cannot be that easily predicted by anyone. However, with proper guidance and proper knowledge, the adoption of digital currency could be increased to a great extent. It is stated that Regulation through government or banks would make it more stable in the market and then many traders and investors may show interest in it. There might be many environmental concerns with the rapid usage of cryptocurrencies as well. There might be increased cybersecurity threats which need to be addressed with care. Since it is highly volatile, it may produce high returns, but it may also sometimes lead to risky investments.

The conclusion is that digital currency is one of the fastest-evolving technologies of the century so far, with two important aspects:

5.1. Integration with Emerging Technologies

Blockchain and AI: The convergence of blockchain with artificial intelligence promises to unlock new levels of innovation in various industries.

5.2. Financial Inclusion and Access

Banking the Unbanked: Digital currencies have the potential to provide financial services to the billions of people who currently lack access to traditional banking.

It is observed that the history of digital currencies is a testament to human ingenuity and the transformative potential of technology. From conceptual seeds planted in science fiction to the global impact of cryptocurrencies, the journey has been nothing short of revolutionary. As blockchain technology continues to evolve and governments grapple with regulatory frameworks, the future of digital currencies promises to shape the way we transact, invest, and interact with the global economy.

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