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Conceptual Differentiation Between Cryptocurrencies and Digital Currencies: A Theoretical Analytical Approach

BELGUELIEL Noureddine
University of M'sila (Algeria), noureddine.belgueliel@univ-msila.dz

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Abstract:

This study aims to address the various forms of digital currencies and to highlight the points of similarity and difference between cryptocurrencies, official digital currencies issued by central banks, as well as electronic money, in light of the economic concept of money and its functions. To achieve the study's objectives, a descriptive–analytical method was adopted by presenting the concept of each type, clarifying its characteristics, issuance mechanisms, and regulatory nature, and interpreting the aspects of difference among them.

The study relied on a set of recent data and statistics related to different currencies. The results showed the existence of fundamental differences among these monetary forms: official digital currencies and electronic money are subject to issuing authorities and legal regulatory frameworks, whereas cryptocurrencies are based on decentralized networks and are governed by developers' authority and encryption mechanisms without central monetary supervision. The study also concluded that the issuance of central bank digital currencies represents a contemporary trend intended to keep pace with rapid technological development, while maintaining institutional oversight and control over issuance and circulation mechanisms within the framework of monetary policy.

Keywords: Cryptocurrencies; Digital Currencies; Virtual Currencies; Electronic Money; Central Bank Digital Currencies.

JEL Classification: G20, E42, O33.

1. Introduction:

Although cash remains the most widely used payment instrument in the world, digital technological transformation and new consumer preferences have changed the way economic agents use money. This has reduced the share of cash in transactions worldwide in favor of cards and electronic-money solutions, making electronic payment systems primary means of payment. Some of these systems are now described as digital currencies—currencies that cannot be seen or physically touched. This development has led many central banks around the world to link their national currencies to different types of digital currencies or to issue their own digital currencies. Digital currencies include official digital currencies issued by central banks and encrypted (virtual) digital currencies issued by developers on the internet through networks based on encryption technologies and blockchain systems.

However, the rapid expansion in the use of terms associated with digital transformation in finance—especially the concepts of digital currencies, cryptocurrencies, and electronic money—has produced a degree of conceptual overlap in economic and financial literature, and even in media, regulatory, and institutional discourse. The term digital currencies is sometimes used to refer to cryptocurrencies, even though cryptocurrencies represent only one form of digital currency. This conceptual confusion calls for a precise theoretical treatment that redraws the boundaries between these concepts and clarifies their legal and economic nature, enabling a clearer understanding of their role in the contemporary monetary system.

1.1 Research Problem:

In light of the above, this research paper seeks to answer the following main question:

Are all digital currencies cryptocurrencies?

A set of subsidiary questions falls under the main question:

- Do digital currencies differ from cryptocurrencies?
- Are cryptocurrencies legal digital currencies?
- Is electronic money classified as a cryptocurrency?

1.2 Research Hypotheses:

To answer the subsidiary questions, the following hypotheses are formulated:

- There are fundamental differences between digital currencies and cryptocurrencies.
- Cryptocurrencies are virtual currencies and not official currencies.
- Electronic money is not a cryptocurrency.

1.3 Study Objectives:

The topic of encrypted (virtual) digital currencies is among the most important developments of today's global technological and digital evolution in the fields of communications, banking, and the spread of electronic commerce in economic life. This research paper aims to define the various types of digital currencies—both cryptocurrencies and electronic money—as well as official digital currencies, by presenting their origins, characteristics, reasons for issuance, and impacts. In general, it seeks to provide a theoretical analytical approach to distinguishing between the currencies addressed in the study.

1.4 Methodology:

To achieve the study's objectives and test its hypotheses, a descriptive–analytical approach was adopted. The descriptive method was used to present the basic concepts related to digital currencies, cryptocurrencies, and electronic money, and to explain the characteristics of each and their legal and economic frameworks. The analytical component was used to interpret the differences among them, analyze their effects on monetary policy and financial stability, and derive economic implications based on the data presented.

1.5 Study Structure:

The study is divided into the following main sections:

- Virtual currencies: concept, types and characteristics, and trading.
- Central bank digital currencies and electronic money.

2. Virtual Currencies: Concept, Types and Characteristics, and Trading

Virtual currencies are among the newest forms of digital money. Their use has become common and widespread over the last two decades in many countries due to their low fees and costs, ease of use, and speed, as payment is made instantly without the need for any other intermediaries. They are currencies created through a technologically integrated system by an individual, a group, a known entity, or an anonymous party (Al-Zaabi, 2018, p. 19).

2.1 The Concept of Virtual Currencies

To clarify this concept, reference is made to the definition of encrypted digital currencies and their emergence, as follows:

2.1.1 Definition of Cryptocurrencies

Researchers have not agreed on a single comprehensive concept of the digital currency, due to differences in determining the nature of the activity it performs, or due to broadening the concept to include direct dealings via the internet and advanced technology available to the general public (Khaladi, 2022, p. 6).

- **Definition 01:** They are textual units that have been converted into highly complex symbols using programming languages, according to their own database that serves only as an infrastructure for cryptocurrencies. These currencies appear in the form of numbers and have their own operating keys, which are encrypted (Hani, 2021, p. 28).
- **Definition 02:** The European Central Bank defined them as: a digital representation of value that is not issued by central banks or public authorities and is not linked to fiat currencies, and is accepted by natural or legal persons as a means of payment, and can be transferred, stored, or traded electronically (Al-Yadak, 2022, p. 875).
- **Definition 03:** A digital (virtual) currency is a digital representation of value that can be transferred, stored, or traded electronically. It is not issued by a central bank or public authorities and is not necessarily linked to a fiat currency (such as the dollar, the euro, and so on). Rather, people accept it as a means of payment. The most common digital currency today is Bitcoin (Bourlazq Abdelhafid, et al, 2018, p. 05).
- **Definition 04:** Digital currencies are currencies that exist only in digital form. They include virtual currencies and cryptocurrencies, in addition to central bank digital currencies (CBDC). Some argue that it is difficult to call virtual and cryptocurrencies

> currencies because they lack the basic conditions that any currency should meet—namely, being a unit of account, a widely accepted means of payment, a store of value, and an accepted standard for settling deferred debt. Therefore, they consider it more accurate to call them crypto-assets (Ben Omar & Boughezala M'hamed, 2022, p. 37).

A cryptocurrency can be defined as a virtual currency with no physical existence except on the internet. It relies on cryptography to protect it within a network composed of multiple computers. The fundamental difference between it and other forms of money—even electronic money—is that it does not depend on a guaranteed third party such as banks. This definition highlights the advantages of cryptocurrencies: they eliminate the third party that verifies that the payer actually possesses the money, replacing it with a peer-to-peer network in which all peers are equal and collectively ensure that the same currency is not spent twice. All of this is recorded in a distributed public ledger called the blockchain (Othmaniyah & Ibn Qirat, 2022, p. 336).

Cryptocurrencies are also a type of unregulated digital currency. In a European Central Bank report in 2012, they were defined as a type of unregulated digital money used and accepted among members of a particular virtual community, typically issued and controlled by developers. According to a report by the same bank in 2015, a virtual currency is a digital representation of value that is not issued by a central bank, a credit institution, or an electronic money institution, and that may be used in some circumstances as an alternative to money. According to a 2013 definition by the United States Department of the Treasury, it is a medium of exchange that performs the function of currency in some situations, but it does not possess all the characteristics of real currency (Ben Omar & Boughezala M'hamed, 2022, p. 40).

2.1.2 The Emergence of Virtual Digital Money

The origin of cryptocurrencies dates back to 1998, when the Chinese engineer Wei Dai developed a currency-encryption system called b-money, which enabled individuals to generate units of money by solving complex mathematical problems. It was the initial nucleus that later shaped today’s digital currencies, but it did not succeed due to the absence of many implementation details. Then, in 2005, the well-known computer scientist Hal Finney overcame this challenge by introducing reusable proofs of work to develop the concept of crypto-assets.

However, the real success of this form of money came in late 2008, when a white paper was published presenting a decentralized peer-to-peer electronic cash system called Bitcoin to a cryptography mailing list by a person or group using the pseudonym Satoshi Nakamoto. On January 3, 2009, Bitcoin came into existence when the first Bitcoin block was mined by Satoshi Nakamoto, who received a reward of 50 Bitcoin. The first recipient of Bitcoin was Hal Finney, who received 10 Bitcoin from Satoshi Nakamoto in the first Bitcoin transaction in the world on January 12, 2009. According to the well-known CoinMarketCap website, there are more than 5,000 digital currencies with a market value exceeding 240 billion US dollars, with Bitcoin ranked first among digital currencies, followed by Ethereum and then Ripple (Mishal, 2021, pp. 50-51).

2.2 Types and Characteristics of Virtual Digital Currencies

2.2.1 Types of Cryptocurrencies

To begin with, cryptocurrencies are classified into two categories: stable currencies and unstable currencies.

A. Stablecoins:

A stablecoin is a fixed or stable digital currency and is one form of digital currency. It is distinguished by the possibility of being issued against collateral that represents the value of underlying assets. The type of these assets differs from one currency to another. Typically, the peg ratio for these currencies is (1:1) to certain fiat currencies such as the US dollar or the euro, or they may be pegged to other assets such as precious metals (for example, gold) or even to other cryptocurrencies. A stablecoin is viewed as a type of cryptocurrency designed to maintain a stable market price. Although the mechanisms differ from one stablecoin to another, stablecoins are generally intended to be somewhat resistant to market volatility, so they do not experience major price changes or sharp fluctuations. Many stablecoins maintain a fixed value as a result of being pegged to the price of another asset such as the US dollar or gold.

On the other hand, stablecoins benefit from the advantages provided by cryptocurrencies, such as transparency, security, stability, the use of digital wallets, transaction speed, low fees, and privacy, without losing the guarantees of trust and price stability that result from using fiat currencies and legally recognized assets as backing (Central Bank of Jordan, 2020, p. 14).

The currency that Meta (formerly Facebook) announced its intention to launch in 2019 under the name Libra at that time (later Diem) is considered a stablecoin, as the company stated that it would not issue any currency without reserves equivalent to its value (Othmaniyah & Ibn Qirat, 2022, p. 338).

B. Unstable digital currencies (decentralized):

These are issued by private actors outside the frameworks and rules of the prevailing monetary system, and the most widespread users are individuals (Khaladi, 2022, p. 8).
Below are examples of some of the most well-known cryptocurrencies:

- **Bitcoin (Bitcoin):** The term is an abbreviation of Bit, meaning the smallest unit of digital storage on a computer, and Coin, meaning currency. Together, the meaning becomes a currency based on the smallest unit of digital storage on a computer. The protocol of its system is symbolized by BTC. Each unit is divisible into 100 million smaller units called satoshi. The reason for dividing each unit into this number is that issuing it becomes more difficult and complex over time, which leads to a reduction in the number of units issued in each period (Hani, 2021, p. 62).
- **Ethereum (Ethereum):** It is the second virtual currency after Bitcoin and is also a decentralized platform that allows the creation of smart contracts in a way that resembles concluding traditional contracts, but it requires conditions for execution without the need for an authority or a specific entity to control its operations. It was proposed by the Russian programmer Vitalik Buterin in 2013 and was launched for official use in 2013. The platform was subjected to hacking and theft in 2016, after

which Ethereum was split into Ethereum (ETH) and Ethereum Classic (ETC) (Shudar, 2021, p. 410).

- **Ripple (Ripple):** This name refers to a payment settlement platform (system) launched by the private company Ripple in 2012. The currency used within this platform is called XRP. Although this currency was not originally designed for individuals to use to pay for services, it targeted banks and financial institutions that could use the platform to settle payments among themselves. The creator of Ripple aimed for it to replace the global SWIFT network as a provider of secure financial messaging services (Central Bank of Jordan, 2020, p. 24).
- **Litecoin (Litecoin):** Unlike Bitcoin, which is often described as digital gold, Litecoin is digital silver. A Litecoin wallet can be downloaded from the official Litecoin website. It is fully encrypted and is useful for people who need to transfer small amounts quickly because it is faster and easier to transfer from one person to another due to its newer generation design (Tahiri, 2021, p. 429).

2.2.2 Characteristics of Cryptocurrencies

A set of characteristics can be explained as follows (Al-Nuaimi, 2018, pp. 18-19):

- **User anonymity:** Using the virtual currency Bitcoin enables anonymity, as completing a transaction does not require verifying the user's identity, and buying and selling operations do not require disclosure of any personal data or information.
- **Broad scope:** Bitcoin is characterized by the ability to transact with any individual anywhere in the world. Its system allows the transfer of funds from any place to any other place in any amount.
- **Very high speed of transferring money:** One of the distinctive features of using Bitcoin is speed, as large-scale transactions across different regions and countries can be completed within only a few seconds.
- **Control and protection of identity and funds:** Bitcoin users have full control over their transactions, making it impossible for merchants to forcibly impose undisclosed or unwanted fees, as can happen with other payment methods. Bitcoin payments can be made without integrating or linking personal information to the transaction, providing strong protection against identity theft. Users can also protect their funds through backup and encryption.
- **Low cost of use:** Transactions and transfers are characterized by low costs for transferring, paying, and moving funds, because these virtual funds do not pass through banking institutions or international and local financial entities. Transactions occur directly between users without the need for an intermediary that would increase costs.
- **Ease of use:** Whatever system is used; it is easy for individuals who do not have technical expertise. Computers help create transactions quickly and easily, in addition to the possibility of using tablets and internet-connected phones.
- **Difficulty of tracking:** This is among the most important features, as it is difficult to track transactions or trace them to identify the parties involved, in addition to the ambiguity surrounding the goods and products used in the exchange process.

- **Facilitating global trade:** By nature, encrypted transactions are not subject to exchange rates, interest rates, transaction fees, or other charges imposed by a particular country. Using the blockchain mechanism, cross-border transfers and transactions can be carried out without complications caused by fluctuations in currency exchange rates and similar issues (Bouthelja & Abed, 2022, p. 113).
- **They exist only in digital or electronic form:** Virtual currencies, like electronic money that relies on software, have no physical existence and exist only in digital form, as they are stored on a server (Laour & Kaboot, 2021, p. 21).

2.3 Trading in Virtual Currencies

In recent years, the trading and issuance of virtual currencies worldwide have witnessed notable developments. Many countries have adopted different regulatory policies for trading these digital assets or for launching national digital currency projects. The following table aims to summarize the most prominent projects and initiatives taken by countries and central banks, while indicating the legal and economic notes related to each project. This helps in understanding the differences among countries in how they deal with this new financial phenomenon. The following table summarizes this:

Table 1. Trading and Issuance of Virtual Currencies

Country	Key Projects and Decisions	Notes
Germany	One of the first countries to recognize Bitcoin as a form of electronic money. Imposed taxes on corporate profits, with exemptions for individual transactions.	The Court of Justice of the European Union (2015) treated Bitcoin as a currency exchanged for goods/services and exempt from VAT when exchanged for euros.
United States	Issued guidance on creating and trading cryptocurrencies (2013). Accepted Bitcoin and other cryptocurrencies on exchanges and under securities regulation frameworks.	Guidance issued by the SEC and the CFTC to strengthen market regulation.
China	The central bank supports trading in digital currencies to reduce costs and increase efficiency.	Emergence of exchanges such as BTC exchanges, Chinese Coinbase, Bai Hang, and Bitfinex.
Ecuador	Passed legislation allowing the issuance of a national digital currency under central bank management.	Considered the first country to issue an official national digital currency.
Netherlands	The central bank experimented with a Bitcoin-based digital currency called Denkoi.	A centralized experiment for research and economic testing purposes.
South Korea	The government is developing a national digital currency using blockchain technology.	Focus on establishing a legal basis for trading digital currencies.
Bahamas	Issued the digital currency Sand Dollar to support disaster response and help citizens and businesses.	Enhancing financial inclusion and rapid crisis response.
Marshall	Issued a central bank digital currency	Aimed at increasing financial inclusion

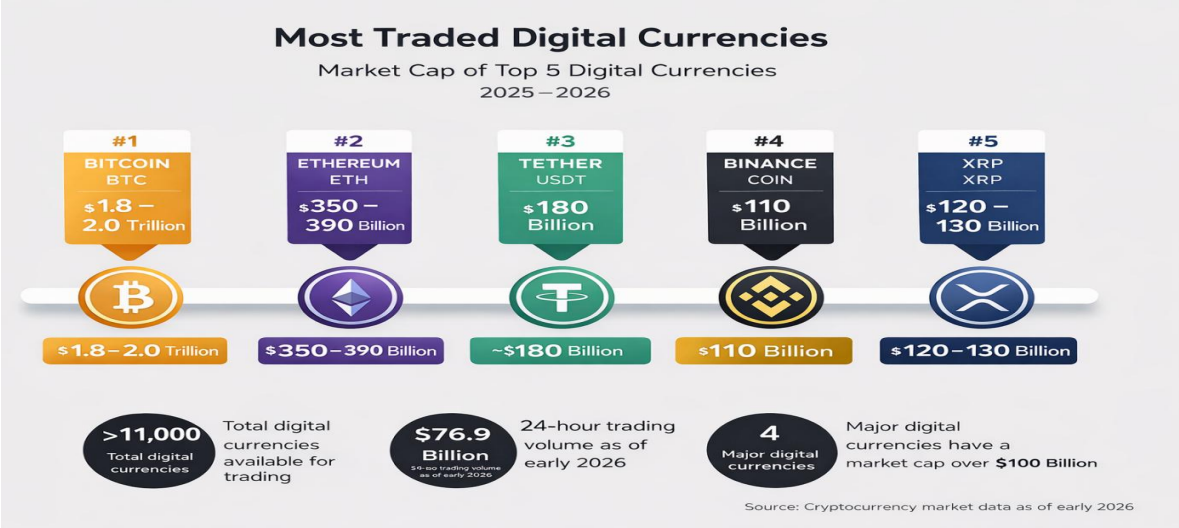
Islands	using blockchain technology.	and stimulating the digital economy.
Sweden	Launched a project to study the feasibility of issuing the e-krona (2017).	Assessment of economic and technical feasibility.
Thailand	Developed a central-bank digital currency for interbank payment settlement.	A pilot to evaluate the feasibility of cross-border transactions.
Uruguay	Piloted the e-peso between November 2017 and April 2018.	A practical test of trading a national digital currency.
Arab countries	Central banks in Jordan, Bahrain, Algeria, Saudi Arabia, Iraq, Oman, Qatar, Lebanon, Egypt, and Morocco issued regulatory instructions regarding cryptocurrencies.	Anti-money-laundering provisions, warnings about price volatility, and non-recognition of crypto-assets as an official means of payment.

Source: Prepared by the researcher based on: (Bouthelja & Abed, 2022)

From the previous table, it can be noted that countries clearly differ in their strategies toward virtual currencies. Some countries, such as Germany and the United States, have focused on establishing regulatory frameworks and protecting investors, while other countries, such as Ecuador and the Bahamas, have chosen to issue official national digital currencies to enhance financial inclusion and to strengthen control over the monetary system. It also appears that there is growing interest among central banks in European and Asian countries in experimenting with official digital currencies (CBDCs), with an emphasis on leveraging modern technology to improve financial efficiency and reduce risks associated with the high volatility of decentralized cryptocurrencies.

Countries' interest in virtual currencies is not limited to regulatory and legislative aspects; it is also linked to the growing global volume of trading in these assets. In recent years, the market capitalization of cryptocurrencies has expanded significantly, with a limited number of currencies dominating the largest share of global trading. This reflects increasing confidence among users and the widening scope of their use. Reviewing the largest digital currencies by market capitalization helps clarify the degree of market concentration and the reasons behind the rising international interest in regulating this field.

Fig 1. Market Capitalization of the Top 5 Cryptocurrencies in 2025–2026



Source: (Coin Market Cap, 2026)

The previous figure shows that the digital cryptocurrency market is highly concentrated in a limited number of currencies. Bitcoin (BTC) tops the list with a market capitalization ranging between 1.8 and 2.0 trillion US dollars, reflecting its position as a leading currency and one that investors consider reliable.

Ethereum (ETH) comes in second place with a market capitalization between 350 and 390 billion US dollars, highlighting its importance, especially in smart applications and smart contracts.

Tether (USDT), a stablecoin, ranks third with a market capitalization of about 180 billion US dollars, indicating the significant role of stablecoins in facilitating transactions and reducing price volatility.

Binance Coin (BNB) and XRP occupy the fourth and fifth positions, respectively, with market capitalizations ranging between 110 and 130 billion US dollars, demonstrating the diversity of dominant currencies and their roles in exchange services and digital payments.

Additional data in the figure indicate that more than 11,000 digital currencies are available for trading and that 24-hour trading volume reached about 76.9 billion US dollars, reflecting high activity and a growing level of adoption of digital currencies in global markets.

It also shows that four of these major digital currencies each exceeded a market capitalization of 100 billion US dollars, underscoring the market's concentration around a small group of highly trusted assets.

3. Central Bank Digital Currencies and Electronic Money

According to the European Central Bank's classification, virtual currencies are divided into three main types based on their dependence on fiat currencies, as follows:

- Virtual currencies used on a limited scale, such as those used in electronic games.
- Virtual currencies linked to fiat currencies or to the economy in a one-way manner; these are currencies that have an exchange rate against fiat currencies and can be used as a currency to purchase electronic goods.
- Virtual currencies linked to fiat currencies or to the real economy in a two-way manner; these are currencies that have an exchange rate against fiat currencies and can be used as a currency to purchase electronic goods or real goods (Central Bank of Jordan, 2020, p. 10).

3.1 Central Bank Digital Currencies (CBDCs)

The absence of legal backing for cryptocurrencies has led many central banks to adopt a wait-and-see, monitoring stance regarding the future of these currencies, to prohibit dealing and trading in them, and to rethink in a serious way how to benefit from the opportunities they present—especially after the spread of encrypted virtual currencies, most notably Bitcoin, which has gained user approval because it offers many advantages related to instant payment, removing centralization, and eliminating intermediation between parties within payment and money-transfer systems, among other benefits.

For this reason, central banks worldwide have recently begun to focus seriously on studying the possibility of issuing a legal digital currency. Despite the lack of legal legitimacy and the prohibition of dealing in encrypted virtual currencies, this has not

prevented financial institutions and technology pioneers from considering how to benefit from the technology on which cryptocurrencies are built, by applying it to instant payment, cross-border transfers, compliance, and other uses. This includes the growing possibility of issuing digital currencies by central banks or monetary authorities that possess legal legitimacy, support consumer confidence in finance, and rely in their issuance and circulation on electronic payment tools and methods (Central Bank of Jordan, 2020, p. 15).

For a long time, central banks have issued fiat money circulated within a country and sometimes beyond it. Suddenly, these banks found themselves outside a game whose rules they themselves had set, which pushed them to think about issuing their own digital currencies—currencies that coexist with the fiat money they issue and that benefit from the technological advantages of cryptocurrencies and stablecoins.

In a survey conducted by the Bank for International Settlements (BIS) in January 2020, which included 66 representatives of central banks accounting for 90% of global output, 80% of respondents were currently (or soon would be) working on central bank digital currencies, compared with 65% in 2017. Countries that had not yet participated were either small or had more urgent priorities. About 40% of respondents said they had moved from conceptual (theoretical/visionary) research to experiments or proofs of concept. Nevertheless, 70% of respondents stated that it was unlikely or very unlikely that they would issue any CBDC in the short term, while 10% said they were ready to do so and 20% reported that they expected to implement it in the medium term. This illustrates the tremendous momentum accompanying the emergence of this type of currency, which imposes strong pressure on countries that have not yet considered launching their own digital currencies. The Atlantic Council (2022), which tracks various attempts to launch central bank digital currencies, reported that as of May 2022 it counted about 91 countries worldwide that had researched, developed, or launched their own digital currencies, including, for example, the Bahamas, which launched its digital currency, the Sand Dollar, intended for use by individuals and businesses (Othmaniyah & Ibn Qirat, 2022, p. 339).

According to the Bank of England, a central bank digital currency (CBDC) can be defined as electronic central bank money that (Bilotta & botti, 2021, p. 24):

- Can be accessed more widely than reserves.
- Is likely to have functions far greater for retail transactions than cash.
- Has an operational structure separate from other forms of central bank money, allowing it to serve a different primary purpose.
- Can bear interest, under realistic assumptions, paying a rate different from the rate on reserves.

In light of rapid developments in digital payment technologies and the spread of cryptocurrencies, central banks around the world have begun to seriously consider issuing official digital currencies (CBDCs). This shift aims to benefit from technological advantages derived from cryptocurrencies—such as instant payment, reduced intermediation, and higher financial efficiency—while maintaining legal legitimacy and trust in the monetary system. The following table presents key recent statistics and developments related to central bank digital currency projects through 2025–2026, including the number of

participating countries, project stages, transaction volumes, and levels of financial inclusion.

Table 2. Recent Developments Related to CBDCs Through 2025–2026 (Actual Data and Forecasts)

Indicator (Variable)	Statistics
Number of countries exploring or working on CBDCs	137 countries (representing 98% of global GDP)
Number of countries in advanced stages (development/pilot/issuance)	72 countries
Number of countries that have officially launched a CBDC	3 countries (The Bahamas, Jamaica, Nigeria)
Share of central banks that have launched CBDC projects	91% of central banks have engaged in CBDC work
Share of central banks that intensified CBDC efforts (2024 survey)	More than one third of central banks (i.e., over 33%)
Share of central banks focusing on retail CBDC models (2024 survey)	About 70%
Share of central banks using CBDCs for financial inclusion (2024 survey)	62%
Expected global CBDC transaction volume in 2025	Approximately 307 million transactions
Expected transaction volume growth by 2031	About 7.8 billion transactions
Value of transactions via the mBridge platform	55.5 billion US dollars
Number of e-Rupee users in India	Approximately 7 million users
Increase in China’s e-CNY transactions	3.4 billion transactions (approximately 2.4 trillion US dollars)

Source: Prepared by the researcher based on: (Atlantic Council, 2025) (Bank for International Settlements (BIS), 2025) (Juniper Research, 2024) (SQ Magazine, 2025)

The table demonstrates the scale of global momentum toward developing and issuing central bank digital currencies. The vast majority of central banks are participating in CBDC projects at different stages, ranging from theoretical research to pilots and official launches. Although actual issuance remains limited to a small number of countries, the expected growth in transaction volumes and the rise in the number of users in projects such as the e-CNY and the e-Rupee indicate the gradual diffusion of this technology. The strong focus on retail models and financial inclusion also reflects central banks’ efforts to provide safe and efficient digital alternatives to traditional cash, while maintaining control and legal oversight of the financial system.

3.1.1 Justifications for Issuing a Centralized Digital Currency

In reality, cryptocurrencies have been rising at a rapid pace, with their number reaching around four thousand virtual currencies. Therefore, this momentum in currency issuance must be addressed. In this regard, the Governor of the Central Bank of Lithuania stated: No one in the central banking community was seriously thinking about a digital currency until we realized that there was a legitimate threat that someone else would take the place we need. What we need is to provide society with what it wants in line with global changes. It can be said that central bank digital currencies were designed to narrow the scope of use of cryptocurrencies, which pose a risk to the international economic system.

Issuing central bank digital currencies would also give governments the ability to control digital currency transactions, especially by tracking electronic records and the movement of currencies. These currencies also contribute to the stability of the international economic system (Bouthelja & Abed, 2022, p. 193).

In general, the main justifications can be summarized as follows:

- **Confronting the spread of cryptocurrencies:** Reducing reliance on decentralized digital currencies that may threaten financial stability.
- **Ensuring monetary sovereignty and control:** Enabling the central bank to control digital monetary policy and preventing the state from losing financial influence.
- **Enhancing financial transparency:** Allowing electronic transactions to be traced and the flow of funds to be monitored.
- **Combating money laundering and terrorist financing:** Providing legal mechanisms to effectively oversee digital trading.
- **Improving financial efficiency and reducing transaction costs:** Facilitating instant payments and cross-border transfers without a traditional central intermediary.
- **Supporting financial inclusion:** Providing a safe and easily accessible digital payment instrument for all citizens, including those not served by traditional banks.
- **Strengthening economic and monetary stability:** By integrating modern technology into the official legal framework and protecting the monetary system from volatility in digital markets.
- **Leveraging technology derived from cryptocurrencies:** Applying blockchain and digital technologies to improve monetary operations without abandoning legal legitimacy.

3.1.2 Effects of Central Bank Digital Currencies on Monetary Policy

The Bank for International Settlements considers that central bank digital currencies can contribute to increasing the efficiency of monetary policy transmission channels. They may also enable central banks in advanced economies to overcome the problem of being unable to reduce interest rates below the effective lower bound (ELB), thereby allowing demand-side stimulus. This is particularly relevant when some banks—for example, in the euro area—do not pass on changes in negative interest rates to their customers, and when individuals tend to hold cash-like assets to avoid negative interest rates, which limits the impact of monetary policy. In contrast, central bank digital currencies may increase the effectiveness of monetary policy if central banks move toward raising the cost of holding cash (Abdel Moneim, 2020, p. 5).

In general, these effects can be summarized as follows:

- **Strengthening the central bank's ability to control the money supply:** Enabling central banks to adjust liquidity in the financial system more quickly and with greater precision.
- **Improving the effectiveness of traditional monetary policy tools:** Such as interest rates, reserve requirements, and quantitative easing, by integrating them with direct digital instruments.
- **Enabling monetary policy to operate at the effective lower bound (ELB):**

Handling negative interest rates more flexibly and directing liquidity in a more targeted manner.

- **Increasing transparency and oversight of monetary flows:** Accurately tracking the movement of digital money to support monetary decisions.
- **Reducing reliance on traditional cash:** Lowering costs associated with minting/printing, storage, and distribution, and making liquidity control easier.
- **Supporting financial stability:** By reducing risks associated with decentralized cryptocurrencies and their volatility.
- **Enhancing responsiveness to economic crises:** Allowing digital liquidity to be directed directly to individuals or affected economic sectors.
- **Promoting financial inclusion:** Integrating individuals who do not use traditional banks into the official financial system, enabling the central bank to broaden the reach of monetary policy.
- **Enabling financial innovation:** Encouraging the development of digital payment tools and modern financial infrastructure.
- **Improving the efficiency of cross-border settlement:** Facilitating international transfers and applying monetary policy on a broader scale.

3.2 Electronic Money

This section addresses the concept of electronic money from the perspective of central banks and official international bodies, as well as the institutions associated with it, and the characteristics that distinguish it from other concepts.

3.2.1 Definition of Electronic Money

The concept of electronic money is characterized by ambiguity and is still sometimes used inaccurately. Research into the concept shows that electronic money differs from credit card balances and from money held in electronic bank accounts.

According to the European Central Bank’s definition, electronic money is an electronic store of monetary value on a technical device, which can be used widely to make payments to entities other than the issuer of the electronic money. The device acts as an instrument for its holder, is prepaid, and does not necessarily involve bank accounts in transactions. Electronic money is divided into hardware-based electronic money and software-based electronic money (Laour & Kaboot, 2021, p. 03).

Egyptian law also defines it as a monetary value denominated in the Egyptian pound or in one of the currencies issued by official monetary issuance authorities, owed by the licensed issuer, stored electronically, and accepted as a means of payment (Law No. 194 bis, 2020).

3.2.2 Circulation of Electronic Money

After the development of the magnetic stripe affixed to the plastic card, monetary value began to be stored on it. The widespread use of electronic money started in 1972, when the Automated Clearing House was established. Its role was to provide the US Treasury and commercial banks with an electronic alternative for issuing checks. Similar systems then spread in European countries, leading to the use of electronic money in the form known today. The magnetic stripe on the plastic card was developed again in 1974.

Then, in 1979, the most notable event occurred: the invention of the smart card, which represents the main form of electronic money. It was later developed with more advanced technology, resulting in the first conventional smart card in 1986. Japan adopted this type of money in 1995, issuing some forms of electronic money and producing the machines related to it (Hani, 2021, p. 25).

As electronic money evolved over decades—from the magnetic stripe to the smart card and modern technology—it became possible to measure its spread and its impact on modern financial systems. Global statistics reflect the actual use of electronic money, whether through digital wallets or payments at points of sale and in electronic commerce, and they show the market size and the financial value of these transactions. The following table presents key digital indicators related to electronic money worldwide, helping to understand the growth of this sector and the importance of its role in the digital transformation of payments.

Table 3. Key Global Figures for Electronic Money

Comparison Criterion	Electronic Money
Number of digital wallet users worldwide	More than 4.5 billion users in 2025
Share of transactions using electronic money at point of sale (POS)	About 32% of global POS transactions
Share of electronic money in electronic payments (e-commerce)	About 49% of the value of e-commerce payments
Global digital payments industry market size	111.2 billion US dollars in 2023
Global use of cash at point of sale	Cash represents only 16% of the value of POS transactions
Total global digital payments transaction value	The total transaction value in the digital payments market is expected to reach 26.89 trillion US dollars in 2026
Highest total digital transaction value worldwide (by country)	Recorded in China, and expected to reach 10.96 trillion US dollars in 2026

Source: Prepared by the researcher based on: (Market Research, 2025) (Gitnux, 2025) (Statista, 2025)

The data in the previous table provide a clear picture of the global expansion in the use of electronic money following its historical development. The number of digital wallet users is continuously increasing, and it is expected to reach more than 4.5 billion users in 2025.

Electronic money represents about half of electronic payments in global e-commerce. In addition, reliance on paper cash at points of sale has declined to only 16%, reflecting the growing trend toward digital transformation in payments. These indicators confirm that electronic money is no longer merely an alternative payment method; it has become a central element in developing digital financial services and enhancing financial inclusion worldwide.

3.2.3 Electronic Money Is Not a Virtual Currency

The concept of electronic money should not be confused with virtual currency, because electronic money is an investment in money that actually exists. Bitcoin is not electronic money, because it does not represent a claim on an issuer backed by existing money, and its value generally cannot be predicted because the exchange rate fluctuates.

The difference is that real (actual) money is influenced by socio-political pressure and the world's confidence in a particular country, whereas digital currency is considered more secure because its value depends only on supply and demand, in addition to the fact that a limited quantity can be produced (Bourlazq Abdelhafid, et al, 2018, p. 06).

The basic differences between electronic money and virtual currencies can be presented in the following table:

Table 4. Basic Differences Between Electronic Money and Virtual Currencies

Comparison Criterion	Electronic Money	Virtual Currencies
Definition	Electronically stored monetary value representing real money	A self-contained encrypted digital asset
Issuing entity	A central bank or a licensed financial institution	No central issuing authority (a decentralized system)
Legal nature	Represents a legal claim on an issuing entity	Does not represent a claim on any entity
Source of value	Derived from the official currency to which it is linked	Determined by market supply and demand
Price stability	Relatively stable (linked to a fixed nominal value)	Highly volatile
Issuance mechanism	Linked to the state's monetary policy	Algorithmic issuance predetermined (for some currencies)
Monetary backing	Backed by an actual official currency	Not backed by traditional collateral
Economic function	An electronic means of payment within the official financial system	Tends to function as an investment (speculation) instrument in addition to a payment function
Oversight and regulation	Subject to clear financial oversight and legislation	Subject to limited or varying regulation depending on the country
Relationship to monetary policy	Part of the monetary system and does not affect the state's monetary sovereignty	May affect the state's ability to control the money supply

Source: Prepared by the researcher based on: (Bank for International Settlements, 2015) (European Central Bank, 2015)

The table clarifies the fundamental differences between electronic money and virtual currencies. It shows that electronic money is directly linked to official currency and has monetary backing and legal guarantees, while virtual currencies operate in a decentralized system and lack monetary backing or any legal claim on an issuing authority.

The comparison also shows that electronic money is more stable and secure in terms of monetary functions and liquidity control, whereas virtual currencies represent a more volatile investment instrument whose value depends on supply and demand in the market.

The table further highlights that control over monetary policy and financial regulation is possible in the case of electronic money, while virtual currencies may affect a state's ability to manage the money supply. This makes understanding these differences essential for policymakers, investors, and financial institutions in identifying the risks and

opportunities associated with each type of digital instrument.

4. Conclusion

This study sought to address the conceptual problem related to distinguishing between digital currencies and cryptocurrencies, in light of the rapidly expanding use of terms associated with digital transformation in the financial field. By adopting a descriptive approach, the study examined the conceptual framework of official digital currencies, cryptocurrencies, and electronic money, clarifying the characteristics of each, the nature of their issuance, and their regulatory framework. This analysis made it possible to identify points of similarity and difference among them, helping to refine concepts and remove the confusion found in economic and financial literature.

The study reached a set of findings that are consistent with and confirm the hypotheses previously presented. They can be summarized as follows:

- **Differences in the issuing authority and regulatory framework:** The study showed that cryptocurrencies are not issued by central banks and are not subject to supervision by an official monetary authority; they are often acquired through technical mechanisms such as mining. In contrast, official digital currencies are issued by central banks and are subject to the state's legal framework and monetary policy, and they are known as central bank digital currencies (CBDCs).
- **Centralization versus decentralization:** Official digital currencies are based on a centralized system overseen by central banks that regulate and control transactions. Cryptocurrencies, on the other hand, rely on a decentralized structure that is not tied to any central entity, and their transactions are validated through distributed networks based on cryptographic techniques and blockchain systems.
- **Mechanisms for controlling transactions:** Official digital currencies allow the monetary authority to monitor transactions and to freeze or cancel them in cases of fraud or money laundering, thereby strengthening legal compliance. By contrast, cryptocurrency transactions are managed through decentralized protocols and cannot be altered except through consensus mechanisms within the network.
- **Legal dimension and potential risks:** The study showed that the decentralized nature of cryptocurrencies may make them more vulnerable to use in illicit activities due to the absence of centralized oversight, whereas official digital currencies provide greater traceability and oversight because they are subject to institutional supervision.

Accordingly, distinguishing between digital currencies and cryptocurrencies represents a fundamental conceptual and functional distinction. It reflects differences in technical structure, regulatory reference, and the economic role of each within the contemporary monetary system. The recent data and statistics used in the study reinforce this distinction and clarify the extent to which different currencies are used in digital financial transactions around the world.

The most important proposals in this context are:

- The necessity of establishing a clear legal framework that defines the legal status of cryptocurrencies within each country, in order to reduce regulatory ambiguity.

- Strengthening cooperation between central banks and international supervisory bodies to coordinate policies related to digital currencies.
- Developing supervisory systems that balance protecting the financial system with supporting technological innovation in the blockchain field.
- Integrating effective mechanisms to combat money laundering and terrorist financing into cryptocurrency trading platforms.

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