

STAGES OF DEVELOPMENT OF MONEY: FROM BARTER TO CRYPTOCURRENCY

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Annotation: This article describes the stages of development of money, its evolution from simple barter systems to complex practices of cryptocurrencies. It also highlights the transition to digital assets, highlighting key milestones and important innovations that have shaped the concept of money.

Keywords: money, barter, cryptocurrency, digitization, plastic card, electronic money, metal coins, gold.

Introduction. The evolution of money is a testament to humanity's flexibility in facilitating exchange and trade. The concept of money has evolved throughout history to meet the changing needs of human society. From its origins as a medium of exchange and store of value in ancient civilizations (A.A.Zhuk., D.S.Zakharova. 2023), money has undergone significant transformations. The emergence of digital crypto-currencies, initiated by computer scientists, has challenged traditional views on the functions of money (Michael, Peneder 2021). This digitalization has highlighted the immaterial function of money as a standard of value and social technology of account, potentially overshadowing its role as a medium of exchange (Ch.Hofmann, 2020). It covers the main stages of innovation over the years, from the emergence of commodity-based currencies to the revolutionary emergence of cryptocurrencies.

In this study, *The Evolution of Money: From Barter to Cryptocurrency*, we trace the complex path money has taken to become the cornerstone of the modern economy, taking an important exercise over time. We explore the origins of barter, where early humans engaged in direct exchange of goods and services, paving the way for more complex monetary systems.

As we consider the evolution of money from barter to cryptocurrency, we face profound questions about the nature of value, trust, and economic opportunity. We must consider the implications of these advances for financial inclusion, privacy and economic sovereignty.

Through this research, we seek to gain a deeper understanding of the forces that shaped the evolution of money and the profound effects they continue to have on our lives.

Analysis and results. Before the discovery of money, people (that is, representatives of different societies) used the method of exchanging goods for goods (barter), and this is the first and simplest form of trade based on mutual exchange in society. But if the desires and needs of the two parties do not match, this trading method will not work. Money was introduced to overcome this limitation (Bernanke B.S., 2020). At first, people used barley, cocoa beans, corn, rice and other similar food products that were popular in the market for exchange. Later, gold and silver entered trade as a unit of

payment ("bimetallism") and became widespread. Usually these two metals are cast in the form of coins. Yes, gold and silver are very popular in the society because they can be circulated for a long time, they are compact and can be easily divided into smaller amounts. Due to these characteristics, gold has been considered a convenient means of storing wealth as an accumulator of value for centuries. Gold is naturally expensive due to its limited quantity, and silver is cheaper than gold and because of its large quantity, it is "liquid" (that is, it can be bought and sold constantly, i.e. it can be exchanged many times in a short period of time). (transitional) was a unit of money that was counted and was usually used for day-to-day trading. Due to its value and size, most users trusted jewelers to store their gold coins, as the safest storage system was with jewelers. Thus, these safe places have become "money vaults". In order to facilitate transfers between gold users, gold bars were put into circulation by jewelers (Fold N., Jønsson J.B., Yankson P. 2014). Over time, gold certificates (certificates) presented by jewelers were recognized in society as having the same value as gold. Thus, these "symbolic moneys" appeared as the second stage of monetary development.



Figure 1. Stages of development of money: from barter to cryptocurrency¹

In order to increase their income, jewelers began to lend the gold that was given to them for safekeeping and temporarily unused, and they (that is, jewelers) gradually became intermediaries between depositors and debtors. Jewelers charged interest from borrowers and paid less interest (percentage of deposit) to their depositors for continuing to hold their gold. Each year, only a small part of the gold (about 15 percent, according to estimates) was returned by depositors, and the majority continued to be stored in warehouses. And in order to get even more income, jewelers began to issue pattas (receipts) in the form of loan slips for more gold than the amount of gold stored in them. This can be called the first example of creating paper and credit money (Ingham G. et al 2014).

Paper money and credit money... let's look at the definition (meaning) of these words. Money, which is the lifeblood of the economy, has been a hot topic of constant discussion. The economy does not work without money, just as a firecracker does not work without water. Money is understood as a means of payment for goods and services. Today, paper money has become a widely used means of payment all over the world (Maurer B., 2015).

We will try to understand the three main functions of money, which are considered the most important:

- means of exchange (in the absence of this function, all operations were carried out in the form of barter);

- store of value (that is, like many other assets, it retains its value over time, but money has more liquidity than other assets);

- measure of value (the value of all products and services is reflected in money. It serves as a general coordinating unit in the reflection of products and services in money).

¹ Independently developed by the author

Stages of development / development (evolution) of money until it reached its present state:

product (in the form of) stage: money, once existed in the form of valuable products/items such as furs, barley, rice, and later gold and silver;

stage of commodity money: money, at this stage, became paper money, but this money was backed by gold and could indeed be exchanged for gold at any time (Desan C., 2015).

paper money phase: paper and electronic money are ubiquitous, but not backed by anything other than a government promise not to print too much money so it doesn't become too debased.

virtual money and crypto-currencies - this emerging and developing phase shows that money does not always have one form and appearance, and it is important that this process is happening right before your eyes and ours (Peters G.W., Panayi E., Chapelle A., 2015).

Paper money is any monetary unit (currency) that has no intrinsic value (this is important!). It is only backed by a government document/statement that the printed (paper) currency is legal tender and its value is based on trust in that government. In order for the monetary unit not to lose its value, the government must protect it from counterfeiting and control and responsibly manage the amount of money printed.

Control over the printing of paper money, as well as banking operations related to the accumulation of partial reserves, are mainly carried out by central banks that have this authority.

You may be surprised to learn that most of the money in any economy is created by banks in the form of bank deposits. The fact is that new money is created every time banks give loans. If the government decides to print more money, there will be more money in the economy. In this case, the market value of the product does not change, but the purchasing power of the currency unit decreases, that is, it is necessary to pay more money for the same product in the market, which causes the depreciation of money (inflation).

In a normal economy, when the money supply grows faster than output, money depreciates, but that's a bit of a simplistic view. The money supply grows mainly due to the creation of new debt, which eventually causes asset prices to inflate like a bubble.

The main criterion in the activity of commercial banks is to satisfy the needs of customers. Banking activities are usually based on regularly recurring transactions. Therefore, the goal of the bank is to maintain and expand the circle of customers, to turn it into enterprises and organizations over a long period of time. The bank should strive to meet real needs, learn to provide the client with the services he needs the most (Lin A., Chen N.C., 2012).

The severe currency devaluation that occurred in Hungary after the Second World War can be called unprecedented hyperinflation. At that time (July 1946) there was a 41,900,000,000,000,000% devaluation, which means prices doubled every 15.3 hours (you can also read about the 500 billion percent hyperinflation in Zimbabwe if you like).

If paper money has no value or intrinsic value, then why are they accepted around the world? Paper money is still in circulation for two main reasons:

1. the value of money depends only on trust in the issuing state (issuer), which does not require any additional costs or obligations from the state;
2. It is easy and convenient to issue paper money.

Mobile and electronic money:

By the 21st century, two advanced forms of money have become popular: mobile payments and cryptocurrencies. Mobile payments make it easy to pay for products and services or transfer money to other people, usually through apps on a smartphone or tablet. Services such as Apple Pay and AliPay in the world, and mobile payment applications such as PayMe and Click in Uzbekistan are becoming

an important link between entrepreneurs and customers.

Electronic money is numbers written on computers (Rotman S., 2014). The largest money transactions in the world are carried out by transferring these numbers from one account to another.

Cryptocurrency.

The most famous among virtual currencies is Bitcoin, which is believed to have been created in 2009 by a man with the pseudonym Satoshi Nakamoto (Champagne P., 2014). Cryptocurrencies have no physical form. Financial experts consider cryptocurrencies to be superior to other currencies in the following respects:

- it is cheaper to perform various practices with them;
- it is easier to ensure security and confidentiality;
- meets the requirements of financial independence
- practices can be carried out faster;
- it is easier to make international payments (interstate payments are made faster and cheaper);
- works decentralized, unlike national currencies issued by countries.

Cryptocurrency - bitcoin is protected using cryptography (mathematical theory).

Digital money exists only in computer memories - not in paper/metal form (Lietaer B., Dunne J., 2013).

Ancient thinkers developed a cosmological model called the Ptolemaic model. According to it, the moon, sun, stars and planets revolve around the suspended Earth (that is, the Earth is the center of the sky). Despite the fact that this theory turned out to be wrong, the developed model remains a reliable method of defining (calculating) the seasons, the movement and position of the planets. But with the passage of time, new models (methods) have appeared, which have given humanity even more opportunities and even allowed us to reach the (previously impossible) moon.

The modern financial system, which turns money into a product rather than a means of exchange (buying/selling) between material products, as with the Ptolemaic model, is definitely not a perfect system (Lewis A., 2018). Because this system is the cause of various socio-economic and even environmental problems (such as financial crises and subsequent depressions caused by speculative games in the stock market, real estate market and other types of markets). But for now, this is the world's accepted and working system, and we'll have to stick with it until we come up with a better system.

Cryptocurrency trading platforms - Exchange works on different platforms:

- Coinbase: only works in the USA and several other European countries: www.coinbase.com;
- Binance: works worldwide: www.binance.com www.binance.us in USA;
- Voyager, Crypto, KuCoin,... and many other platforms are available.

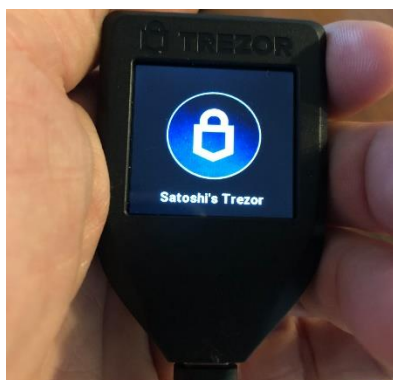


Figure 2. Images of Trezor and Ledger hard wallets²

Wallets:

After buying crypto-currency, it is better not to store it on Exchange. It is easier to transfer them to Wallet. Wallets are of two types - Hard Wallet or Soft Wallet. A soft wallet is opened online through the Internet. Hard wallet can be purchased online.

Cryptocurrency is a very risky asset. The reason is that the price of cryptocurrencies changes very quickly (Smutny Z., Sulc Z., Lansky J., 2021). That is why the cryptocurrency market is called the "Wild West". First, there is non-compliance with the law - there are no laws at all. Secondly, there are many crooks, and everyone will have to protect themselves. Some cryptocurrencies are created just to scam investors out of their money. Therefore, it is possible to get rich in a short period of time and part with all your money.

Trading cryptocurrencies:

- The right to own a crypto-currency is obtained with the help of a private key;
- The private key is a 64-digit "hexadecimal" number. (a number written in the 16 number system. This number consists of the following 16 numbers and letters: 0,1,2,...,9, a,b,c,d,e,f.);
- You can also create your own private key - but this is not recommended;
- A more secure way to have a private key is to open a Wallet;
- To spend money in the wallet, you need to know the private key - the owner of the private key is the real owner of crypto;
- To send crypto to the wallet, it is enough to know the public key generated with the private key. If someone knows your private key, you can lose your crypto.

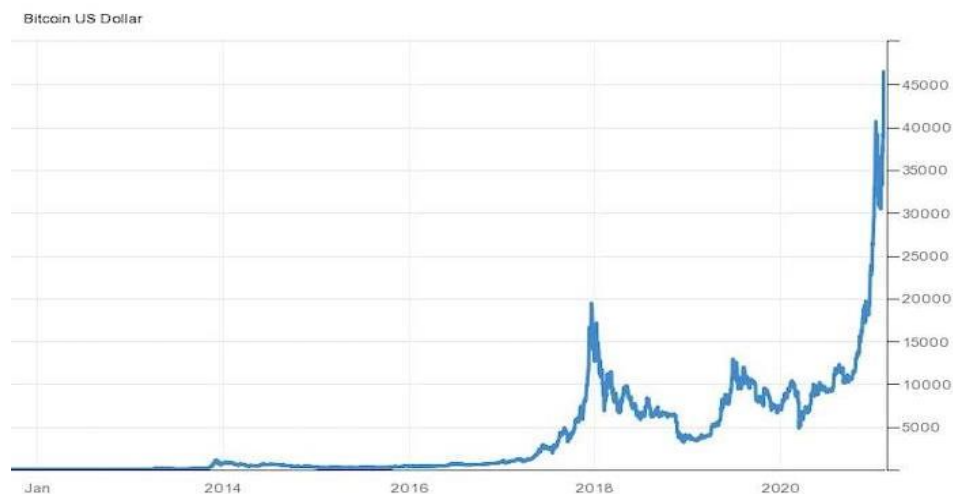


Figure 3. Cryptocurrencies as a speculative asset³

A digital asset is an intangible asset in binary format, including ownership rights. Data that does not contain this right is not considered a digital asset. A digital asset, like all other (non-digital) assets, must have a financial value determined by supply and demand.

Cryptocurrency is electronic money supported by a decentralized computer network. The number of units in circulation and the maximum money supply are predetermined and visible to everyone.

Changes in the financial environment are the result of the natural progressive development of society. A new type of value indicator (money today) appears only by economic necessity, when the

² Independently developed by the author

³ Independently developed by the author

previous form of "money" begins to slow down exchange processes, involves additional costs and gradually loses its economic feasibility .

The formation of the digital economic environment and the modification of market business structures led to the emergence of digital assets (Bharadwaj A. et al., 2013). The presented concept is considered from the point of view of legal, economic, information and value position. Simply put, a digital asset is a digital representation of the value of an actual asset.

Functionality of digital assets:

- Use as a unit of account and a means of exchange;
- Open access to software products or services in a distributed registry;
- For example, the value expression of an asset such as property.

The distinguishing features of digital assets are:

- Provision of real assets (objects, property) or rights to them;
- The right of inheritance;
- Mechanisms to restore access (re-access) to digital assets;
- Application in many fields of activity;

Real assets undergo a digitization process, which involves creating a unique digital copy with ownership defined on the blockchain (Huhtinen T.P., 2014).

The presented features confirm the properties of digital assets and reveal their widespread use in the new economic environment. The introduction of digital assets in various socio-economic (including banking and finance) sectors accelerates the process of many relationships. The use of digital assets by the public sector in retail and wholesale operations is one of the most promising areas of development. This eliminates the anonymity factor in cash payments, which allows reducing the scale of the black market. At the same time, digital assets can become one of the anti-corruption policy mechanisms. Naturally, the introduction of digital assets should not be hasty, because such a procedure requires adaptation of the banking system and the economy as a whole. The level of public trust in the new digital infrastructure remains an important factor today.

Giving digital assets the status of "official means of payment" by the state from the point of view of guaranteeing the performance of monetary functions does not bring them to the status of a new form of money. In this case, they will be a type of cashless money that can be stored and transferred using innovative technologies. At the same time, the concept of "cashless money" should be expanded to include not only bank accounts, but also digital wallets: "cashless money means that there is no inextricable connection between the value of money and information about the value of money taking into account that a form of official means of payment is its material carrier, the reflection and movement of monetary value is carried out by bank accounts (electronic money) and digital wallets (digital assets).

Determining the concepts of "electronic money" and "digital assets" and unjustifiably replacing these concepts, as well as showing their main differences, lead to the organization of fundamentally different formats of the settlement space, which is the form of interaction of its participants. . Taking into account the existing forms of interaction between individuals, commercial banks and economic entities, the transformation process took place under the influence of scientific, technical and communication development, we consider the settlement operation from four stages We note that it consists of:

- 1) ensuring the availability of funds for transfer or transfer to the recipient (in the account / wallet);
- 2) to ensure the order (algorithm) of the process related to the initiation of the movement of funds;
- 3) perform the operation (transfer/send funds);
- 4) confirmation of the transaction.

The "revolutionary" power of the pandemic

As a result of technological progress, the virtualization of financial markets has given more life to the digital and cryptocurrency markets. This process reached a new stage after the coronavirus pandemic.

Changes that would normally take decades have occurred in a year due to the impact of the epidemic. For example, the Swiss Central Bank recently launched an electronic kroner with blockchain technology. The Central Bank of the Bahamas introduced the same program in October 2020. Also, the Central Bank of China, one of the world's leading economies, is preparing to issue a digital currency to the financial markets. This process is expected to be completed by 2035.

These changes signal a new global financial system. This change was driven by the rapid growth of demand for cryptocurrencies and the most famous of them, Bitcoin. Especially recently, many investment companies in the United States and Great Britain have announced that they will use their multi-million dollar investments in favor of cryptocurrencies. In addition, Ricardo Salinas, the billionaire owner of Mexico's largest media, announced on Twitter that he invested 10% of his liquid assets in Bitcoin.

Interest is growing

The vibrant Bitcoin-based market has led some economists and institutions, who are skeptical of cryptocurrency markets, to take a positive turn. For example, well-known economist Nuriel Rubini, who was skeptical of cryptocurrency markets at the beginning of the process, said in an interview with Yahoo Finance journalists that he sees Bitcoin, which he initially called "bad money", as a "partial investment" tool.

A survey conducted by the Bank for International Settlements (BIS) also clearly confirmed this change that took place around the world. According to the results of the survey, in 2020, the interest of central banks in digital money systems on a global scale increased by 10% compared to the previous year. At the same time, another important point is that most of these banks are central banks of developing countries. Developing countries are leading the way in the process of digitalization of money, using some advantages such as the speed of adaptation of their young population to new technologies, the state playing a leading role in new technological changes.

Some leading European countries and the United States are moving more slowly in these changes in the digital currency system. In particular, the lack of power of private enterprises in online payment systems in Europe is the biggest obstacle to the growth of digital currency. In the US, which is known for its loyalty to traditional financial instruments, Facebook's new cryptocurrency called "Libra" and the fact that some companies, led by PayPal, began to accept Bitcoin in payments, have prompted most Western banks to switch to digital money. urged him to consider it once more. One of the latest examples of this is when Bank of Canada Vice-President Timothy Lane said at a press conference that there is a need to respond more quickly to the online activity accelerated by Covid-19 with digital currencies and new products.

Today, technology and financial infrastructures are developing rapidly. However, classic methods such as EFT and SWIFT for money transfers are still slow and expensive. A cashless world offers many advantages, such as very few incidents of theft, low cost of financial services, monitoring of banking services and operations via mobile phone without banking and other mandatory dependencies - budget control. It is also noted that, in addition to personal income, the public will have the opportunity to carry out financial operations faster, and taxation of income from coins can work for the benefit of society and the state.

Along with advantages, digital currencies also have disadvantages. One of the main disadvantages is related to software security. Considering the reports of data breaches published in the

media in recent years, it can be said that information security is a serious problem. Despite the promise of new cryptographic systems, financial technologists warn that it may take another 5-10 years for a new system to reach perfection in terms of transparency, stability and reliability. In addition, the use of cryptocurrencies in illegal activities, which are not under the control of states or independent auditing organizations, remains a very important and dangerous issue.

A report released by the International Monetary Fund (IMF) in October raised concerns that central bank digital currency systems (CBDCs) could open the door to illicit financing and make it harder for local authorities to control capital flows because they lack the necessary legal frameworks is reported.

The report also says that the consumer use of digital currencies without adequate security measures could undermine the effectiveness of central banks. Another important caveat is that weak monetary policy can lead to currency instability.

What are the recommendations?

Following the discovery of the Covid-19 vaccine and the introduction of mass vaccination processes, attention to economic issues has increased worldwide. Digital and cryptocurrencies are seen as one of the serious options to mitigate the deep economic impact of the epidemic and avoid risks for the world economy, which is preparing for new financial opportunities that have begun to emerge after the pandemic. In such a situation, central banks issuing their own digital currencies would be useful in terms of keeping pace with changing technologies and protecting consumers from potential risks.

Conclusion. The evolution of money from barter to cryptocurrency represents a testament to human innovation, adaptability, and the quest for efficient means of exchange. Through millennia of economic development and technological progress, several key conclusions can be drawn regarding the trajectory of money:

1. The history of money showcases humanity's ability to adapt to changing economic landscapes and innovate new forms of currency to facilitate trade. From the simple exchange of goods to the complex digital networks of cryptocurrencies, each stage represents a response to the evolving needs of society.

2. The transition from barter to commodity money to fiat currency underscores the importance of standardization and trust in monetary systems. As societies grew more complex, standardized currencies backed by governments or centralized authorities emerged as the preferred medium of exchange, offering stability and confidence in transactions.

3. The advent of digital technologies has profoundly transformed the nature of money and transactions. Electronic banking, online payments, and digital currencies have revolutionized the way people store, transfer, and transact value, increasing efficiency and accessibility while reducing reliance on physical cash.

4. The rise of cryptocurrencies represents a paradigm shift in the concept of money, challenging traditional financial systems and institutions. Built on decentralized blockchain technology, cryptocurrencies offer the potential for peer-to-peer transactions, greater financial inclusion, and enhanced security and transparency.

5. Cryptocurrencies have the potential to foster greater financial inclusion by providing access to financial services for unbanked populations and enabling cross-border transactions without the need for intermediaries. This globalization of finance has the power to empower individuals and communities worldwide, reducing barriers to participation in the global economy.

6. Despite their transformative potential, cryptocurrencies also present regulatory challenges related to issues such as taxation, money laundering, and consumer protection. Governments and

regulatory bodies are grappling with how to effectively regulate and integrate cryptocurrencies into existing legal and financial frameworks while balancing innovation with security and stability.

7. The evolution of money from barter to cryptocurrency is a testament to the dynamic nature of human economic systems and technological progress. While each stage has its advantages and challenges, the ongoing quest for efficient, secure, and inclusive forms of money continues to drive innovation and shape the future of finance. As we navigate this ever-changing landscape, it is essential to strike a balance between innovation and regulation to harness the full potential of emerging technologies while mitigating risks and ensuring the stability of financial systems.

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