Old analogue normality vs new digital normality in a competitive coordinate system

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Abstract. The article analyses the impact of digitalization on the transformation of monetary forms accelerated during the COVID-19 pandemic. Also paper highlights the reasons for the emergence of digital currency. The author supposes the economic nature of money itself is being modified in a network economy. As a result the digital currency is approaching the ideal money model of the IT economy. On the one hand, the society interpreted the modern digital money (the new digital normality) as a phenomenon of the new economic reality generated by new economic relations; on the other hand, it is a development of the «old» money (the old analogue normality). This leads to a reasonable conclusion regarding the competitiveness of pre-digital and digital currencies in the near term.

Keywords: competitiveness, cash, non-cash, digital money, virtual money, electronic money, cryptocurrency, blockchain technology, centralized currencies, decentralized currencies, central bank digital currency.

JEL codes: E11; E13; E40; E58

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Introduction

Existing cash and non-cash cannot meet the settlement needs of modern economies, as all forms are ultimately based on material money, which is not capable of being transmitted through electronic networks. We can interpret it as a globalization challenge, actualizing the search for relevant responses. Today, we can state that the answer is in the way e-money is designed and promoted.

The digitalization of the economy facilitated the emergence of electronic value transport instruments, but until recently their expansion had been rather localized:

- physical media with electronic chips (e.g. wristbands used in water parks as a payment instrument);
- payment systems (PayPal, etc.) where money is deposited and circulated digitally until it is withdrawn from the account;
- computer - based online games with their own money systems and the possibility of converting money into real money.

Thus, digital money acts as an auxiliary tool to speed up transactions and does not pretend to replace the role of traditional money.

The history of electronic means of payment began in 2009-2011 with the emergence and development of bitcoin, the first cryptocurrency (a digital asset serving as a medium of exchange and payment and using cryptography in its functioning). Major marker of cryptocurrencies in their modern form (i.e. private currencies based on blockchain or other encryption technologies) is the possibility of free and decentralized issuance.

Cryptocurrencies have been met with wariness from official monetary institutions: in 2014, David Andolfatto, economist at the Federal Reserve Bank (FRB) (St. Louis Fed Economist: Bitcoin Could Be a Good Threat, 2014), acknowledged that they are a positive threat to global central banks. But in fact the monetary authority has been actively limiting the circulation of digital money in an effort to prevent real competition from decentralized means of payment.

However, later a number of states announced the creation of their own blockchain-based electronic

currencies.

Even the Bank of Russia, which initially denied the legalization of cryptocurrencies (a jurisprudential term) as money surrogates, created its own electronic ruble to control the regulation of digital money circulation.

Thus, nowadays there are two types of creating and spreading electronic money: cryptocurrencies and central banks' digital currency.

Main Part

The reasons for the emergence of digital currency

Firstly, the demand for cash in the economy is declining. The social costs of settlement are high, the revenue from issuance (as a percentage of GDP) is falling, and cash is less versatile and convenient to use.

Secondly, the role of commercial banks in non-cash settlements as providers of payment services is gradually diminishing. But the background of the growing role of technology companies and financial institutions (especially large ecosystems) interested not only in issuing their own payment instruments but also in new forms of money.

Thirdly, the process of decentralization of monetary and financial services is leading to an increasing role for decentralized finance in the economy, which is transforming the monetary and financial systems.

Fourthly, the US dollar is not the main reserve currency anymore. In the mid-1940s, the American economy increased its potential by 75 per cent against the background of the devastated economies of the other World War II participants, objectively became the leader of the world economy. The 1944 International Financial Conference defined the principles of the new financial structure of the world economy. Also it effectively started the third period in the evolution of the monetary system by legitimizing the severance of economic ties between gold and money commodities.

The first period in the evolution of the monetary system (assessed as pre-corporate industrialism) was marked by the transition from metal (gold) money to paper money exchanged for gold with a parallel circulation of gold coins (Rodina, 2020).

This system was quite stable, as exchangeability ensured the stability of paper money circulation.

During the same period, money began to act as monetary capital. It leads to the transition from money as a mean of circulating goods to money as monetary capital. This capital serves not only for the circulation of goods, but for the circulation of capital.

Finally, paper money acquired a credit nature, or rather, a credit origin, resulting in credit money.

The first form of paper circulation, replaced gold one, was the occurring of promissory notes.

The bank bills of exchange replaced these notes. These bills (banknotes) no longer had, unlike an ordinary bill of exchange, any sign of maturity (i.e. it was not specified when they were to be redeemed), but at any time a bank note could be exchanged for gold, i.e. accounted for in the same way as an ordinary bill of exchange.

The issuing of banknotes then became a monopoly of state, or central, banks. The national paper money systems appeared.

The second period of evolution of the monetary system (assessed as a corporate industrialism) began with the transition from paper money with a parallel circulation of gold coins to paper money only and limited exchange for gold.

Firstly, it was the time of the gold money standard (i.e. paper money could be exchanged for gold coins, but these gold coins were no longer legal tender; they could be bought and sold, but they were no longer used in settlements: they were simply not enough). Secondly, the new stage began: the gold-device standard. And finally, the gold bullion standard (paper money could not be used to buy coins, but gold bars, gold certificates).

The second period in the evolution of the monetary system appeared because of the inability to meet the needs of a sprawling economy with circulation based on precious metals.

But this period ends (Modern Money Theory, 2020).

The third period (assessed as post-industrialism) began in December 1945 after the Bretton Woods

agreements. The currencies of 44 countries were astringent to the US dollar and the dollar to gold ($35 per troy ounce).

Since the US owned 70% of the world's gold reserves in the mid-20th century, these agreements seemed a logical solution. The dollar, a currency convertible into gold, has become the base of currency parities, the predominant means of international payments, currency interventions and reserve assets. The US national currency became world money at the same time.

The dollarization of the economies of a number of countries has resulted in the money supply being moved out of national control and under the control of the US Federal Reserve. This transformation of world money can create the uncontrolled emission of dollars, which was hindered by the requirement that currencies should be secured by material gold. In 1971-1978 the Bretton Woods system was replaced by the Jamaican monetary system based on currency free trade (free convertibility of currencies) without gold secure.

After the half a century past the global market has changed again: emerging markets have strengthened and the US has lost its status as a leader of the world economy. Emerging economies have noticeably increased their global market power by 2019 (from 45 per cent to 60 per cent) since the beginning of the financial crisis in 2008 (Head of the Central Bank of England proposes replacing the dollar with a new reserve currency, 2019).

The dollar has therefore started to take on additional risks which did not exist before (e.g. the risk of a liquidity trap of ultra-low interest rates). It is weakening the global economy. «The world is becoming less hegemonic and more multipolar; less analogue and more digital; less banking and more market-based; less centralized and more distributed,» says Mark Carney, former Governor of the Bank of Canada and Governor of the Bank of England. - The old normality: cash, bank finance and traditional banking payment channels, is breaking down. The world needs a new reserve currency.» (Carney, 2021).

The search for a new reserve currency could follow an ordinary way:

- the appearance of other, non-dollar, national currencies;
- the formation of a new collective currency, similar to the Euro (or its precursor - European Currency Unit (ECU));
- the development of a new synthetic currency like the Special Drawing Rights (SDR) used by the IMF. But the new digital format can be used (Rodina, 2016).

Fifth, the third period in the evolution of the monetary system (assessed as post-industrialism) has evolved to global post-industrialism. On the one hand, the convergence of national markets has made it easier for major corporations to use their technologies across many countries. On the other hand, the development of IT technology has facilitated and accelerated this process.

We can see the emergence of a new diversive society, where decisive action in all areas of human practice is being taken on the basis of digital technology. This innovation could be interpret as the emergence of a fundamentally new type of society, signifying a systemic break with previous societies or as the digitalization of already established relations, which subordinate its forms and functions to long-established principles and practices.

But the emergence in the world economy of supermajor players in the form of transnational corporations (TNCs) is the most relevant issue. As long as TNCs have been weaker than any single developed national economy, they have had to obey the laws governing economic activity in a particular country. This was a major inconvenience for TNCs because they had to be adapted to the tax, credit and currency laws different for each country. This leads to the huge TNCs' losses.

The share of foreign-controlled enterprises in total output ranges from 10% in the US to 25% in Western Europe and one-third in Australia. For developing countries the rate is 40 - 50%.

In terms of market capitalization, assets, sales and profits, TNCs have become very powerful and can impact on other countries and economies (see Table 1).

Table 1 – World largest companies 2020

Companies	Revenue (bn USA dollars)
Walmart (USA, retail)	523.964
Sinopec Groupe (PRC, petrochemical industry)	407.009
State Grid (PRC, power industry)	383.906
China National Petroleum (PRC, oil and gas sector)	379.130
Royal Dutch Shell (Netherlands - UK, oil and gas sector)	352.106
Saudi Aramco (Saudi Arabia, oil and gas sector)	329.784
Volkswagen (Germany, automotive)	282.760
BP (UK, oil and gas sector)	282.616
Amazon (USA, internet retail)	280.522
Toyota Motor (Japan, automotive)	275.288

Source: Fortune Global 500, 2020

The World's Largest Companies ranking presented is made up of US corporations reporting to the Securities and Exchange Commission as well as private companies registered outside the United States but publishing publicly available official statements. Royal Dutch Shell is an only multinational corporation. The other 9 are TNCs.

The top domestic corporation in the ranking is Gazprom, which moved from 42nd to 55th place, with gross revenues of $118.009 billion (World's Largest TNCs 2020, 2020).

In 2019, the gross revenues of the world's top 500 companies were $33.3 trillion, quite comparable to the global GDP of $87.3 trillion (at current prices, IMF data) (Global GDP of the World: 1980-2021, 2021).

However, the autonomy of TNCs is constrained by certain national legal and institutional frameworks, including currency legislation and the monopoly of central banks on money emission.

During the formation of TNCs and their entry into the international market, they adapted to this contradiction through a system of transfer prices, where conventional intra-company prices were used to distort the location of value added production: the bulk of it was shown offshore or in tax-efficient business countries. It allowed them to hide the substantial sums from taxation. But the states improved their legislation and judicially demanded the payment of taxes. But states could not demand the total taxes paid because the TNCs would have left that countries. And the losses would probably prevail the tax collected.

Modern globalization derived from digitalization needs to move to the next level of autonomy for TNCs in relation to nationally determined parameters of economic activity. On the one hand, there is a demand to exploit the possibilities of modern IT technologies to reduce transaction costs in settlement and payment transactions within the global economy. On the other hand, there is a demand to escape the country's central banks money control (Rodina, 2018).

Sixth, the very economic nature of money is being modified in a network economy. We have already considered the contemporary interpretations of the new nature of money (Rodina, 2019):

- in the form of result of virtual fictitious financial capital prevailence (a neo-Marxist concept);
- in the form of special institution, an agreement between people that takes the form of a formal institution implemented in law (the neo-institutional concept);
- in the form of revealing the informational essence of money (the informational concept).

We offer the author's concept considering digital money in terms of development of the money category of the pre-digital society.

In pre-digital society money is a commodity of a special kind, being an equivalent of the value of other commodities (the first function of money, derived from its essence: a measure of value, i.e. money reflects the value of all other commodities. Thus, money is commodity itself.

Commodity as a product of the labour of the commodity producer has two properties related to the

ability of the commodity. First aims to satisfy some human requirement (use value) and, second, to be exchanged for other commodities (exchange value, which is a form of commodity value). By K. Marx, the two properties of the commodity – use-value and value – are due to the dual nature of the labour of the commodity producer. Labour creating different use values is a particular labour and exists in every mode of production. Particular individual labour in any society must have a public character. In the community it acts as directly public and in the commodity economy as private one. The reduction of different specific types of labour to the same and commensurate labour is possible by abstracting from the qualitative features of specific types of labour, isolating simple labour inputs. Such impersonal, homogeneous and commensurate labour contained in a commodity is called abstract labour, which creates the value of the commodity and is not a biological but a social concept, a special form of social labour (Marx, 1960).

Value (socially necessary labour for the reproduction of goods in the form of abstract labour) appears in socio-economic relations in a transformed form. The price of production (production costs plus profit), reflects inter-industry competition and the organic structure of capital (Marx, 1961).

In the industrialized economy, when any material good had a utility, the cost of production, which formed the basis of supply, played a leading role. But the utility, which determined demand, was not primary one. For this reason, value was associated with qualitatively homogeneous and quantitatively commensurable properties of the commodity (see Figure 1).

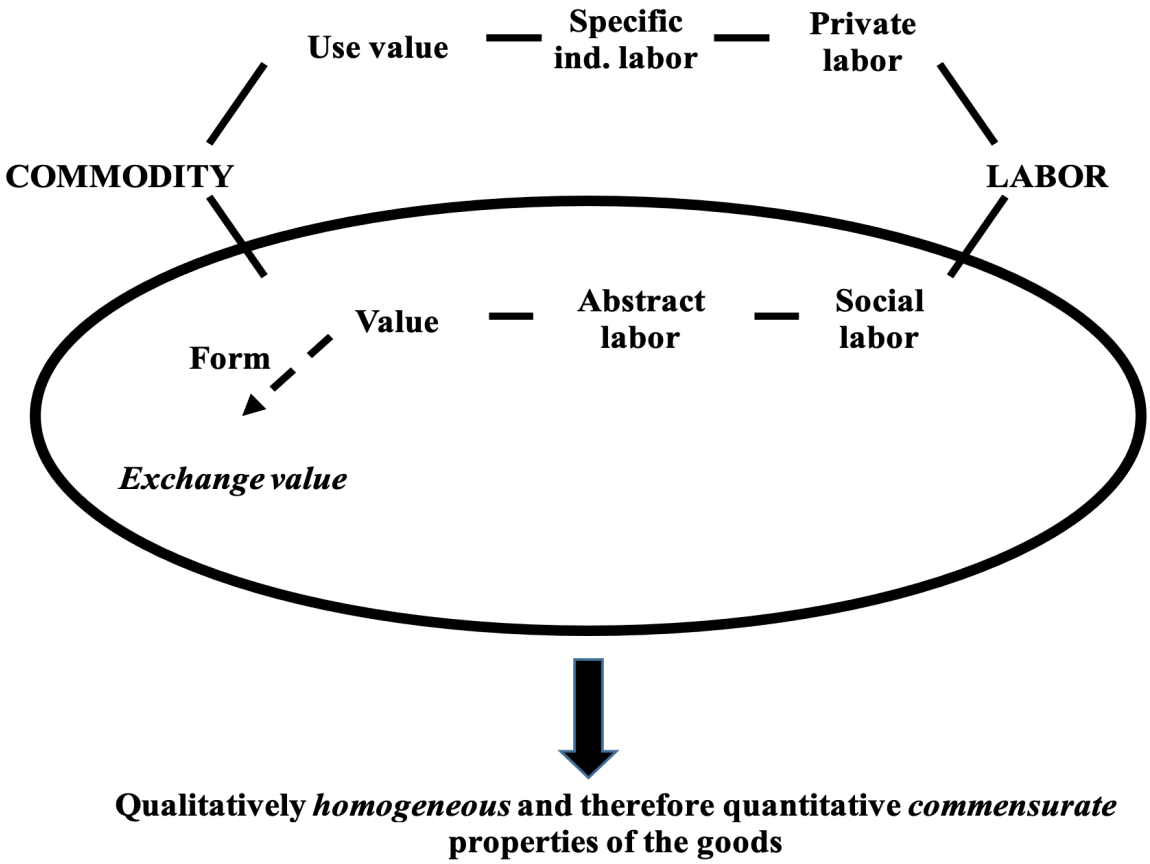

Figure 1. Value in an industrial economy

Source: composed by the author

In a post-industrial, information-based society an increase of production is possible without a proportional increase of labour and material input. The disorder in the linear relationship between cost and benefit means that the cost of creating a product is no longer the determining factor. Thus, the proportions of exchange begin to be determined by utility factors, or rather, by the effect achieving by the continued use of information goods. The utility of knowledge to the buyer depends on the utility of solutions obtained with knowledge as well as the degree of uncertainty reduction.

In a virtual economy value in use dominates over exchange-value because of the individualization of needs and a shift in emphasis from material goods to non-material ones. The use value of information is formed into the use value of an information product in the process of creating the material information medium. For example, an author might be remunerated on the basis of volume, which indirectly expresses labour costs, but in developed countries this system is hardly used anymore. The fee is paid to the author according to the number of copies sold as the print run is completed. In this case, the demand is the characteristic of the value of the information product.

Requirements cease to be unified (they are characterized by an individualized status, which represents the individual as a unique person). So the work of a large number of workers ceases to be reduced to mere labour and is not quantified in the units of abstract labour (i.e. the activity of an intellectual worker is not reduced to abstract labour). Because of the non-similarity of individual labour inputs in the creation of primary information, the value of information must be determined not by the average socially necessary but by individual working time. This way, only in the course of information materialization of replication, storage and transmission labour lose its uniqueness, become reproducible and average. Thus its result becomes a commodity with social consumer value and value itself.

As a result, if the industrial society value was associated with qualitatively homogeneous and therefore quantitatively commensurable properties of goods, the virtual economy qualitatively heterogeneous and therefore quantitatively incommensurable properties of goods (see «New Trajectories of Russia's Financial Sector»: Monograph, 2019).

By consumption, value undergoes a change in utility values. The content of utility is reduced not so much to the universal use value of a product but to its highly individualized symbolic value (see Figure 2).

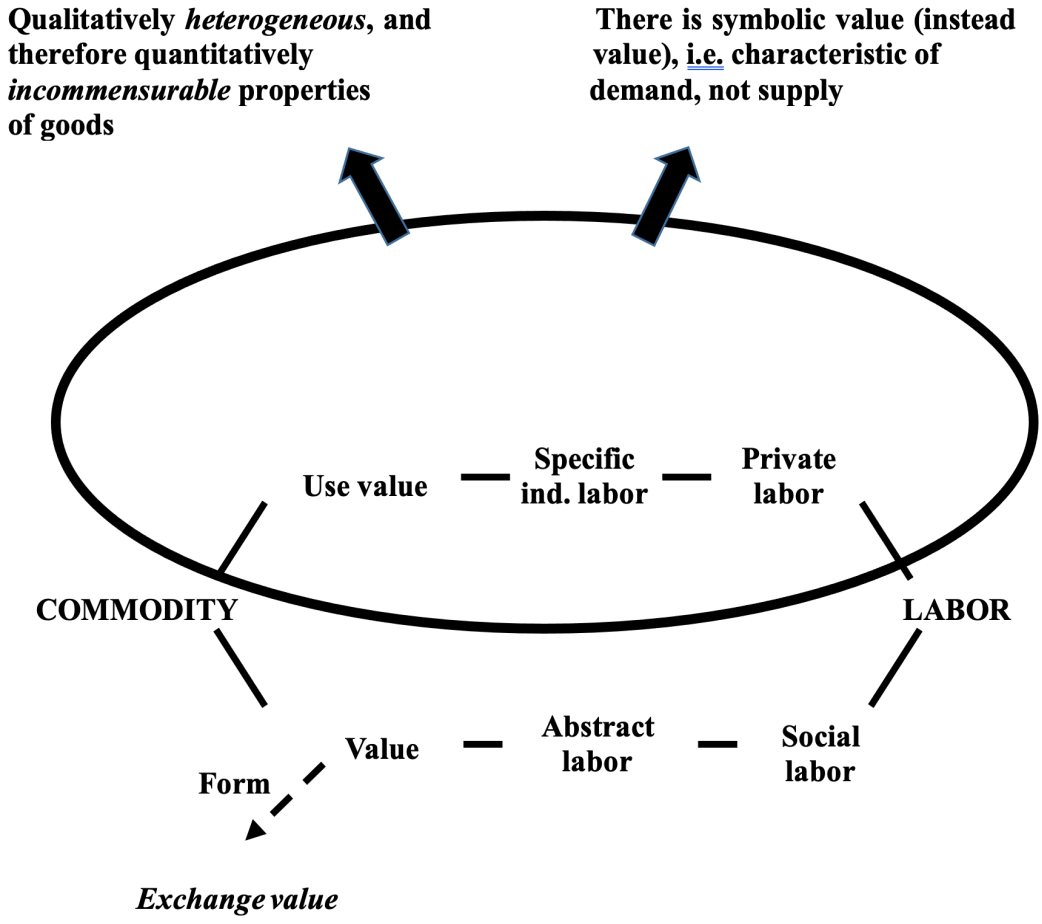

Figure 2. Value transformation in the digital economy

Source: composed by the author

Thus, digital cash is a kind of the ideal money model of the information economy because its circulation

mechanism is based on an electronic representation of value stored in a material medium. The modern digital money (the new digital normality) is interpreting in terms of phenomenon of the new economic reality generated by new economic relations and therefore a development of material money (the old analogue normality), still have its own economic significance.

Cryptocurrency vs Central banks' electronic currency

Some economic and social liberal and libertarian strands are exciting with the emergence of private currencies rivaling with fiduciary currencies. By author's opinion, states are taking a preventive set of measures to fit the phenomenon of cryptocurrencies into existing traditional economic realities. Some states have already announced the creation of state cryptocurrencies, which would essentially be just a form of traditional fiat money.

By the differences in the nature of origin, digital money in the form of cryptocurrencies is more correctly thought of as virtual money and digital currency by central banks as electronic one.

We believe, the objective weakness of private digital money is ensuring by the central banks' activities.

1. The high volatility of cryptocurrencies relative to major currency, commodity and investment assets (Bitcoin Volatility Vs Other Assets, 2021), which naturally makes them not the most convenient tool for circulation and measure of value.

2. The potential capacity and liquidity of the cryptocurrency market is uncertain. Bitcoin had a capitalization of $939.3 billion as of December 2021. By comparison, the US treasuries are larger (Top 100 Cryptocurrencies & Tokens by Market Capitalization, 2021).

3. Weak preservation capacity, a point made by Nobel Laureate Paul Krugman (Krugman, 2013). Indeed, gold, apart from its current market value, has a narrow but stable production demand, as well as an aesthetic appeal that allows it to be in demand even in the event of a complete loss of investment appeal. Fiat currencies allow the holder to hold legal tender and pay taxes and duties. On the other hand, private e-money is the same 'fiduciary arrangement' between market participants, but not backed up by the authority and financial capacity of the state.

4. A tendency to form price bubbles. John Quiggin considers cryptocurrency as a kind of pyramid scheme, expecting that «sooner or later Bitcoin will reach its true value – zero» (Bitcoins Are a Waste of Energy – Literally, 2015).

The development of cryptocurrencies is in progress. But certainly most of these reasons can hypothetically be addressed. In the last 2-3 years, however, there has been a turning point in central banks' stance on digital money. According to the Bank for International Settlements, more than 80% of all central banks were developing their digital currency in 2020 (Kisarov, 2021).

More recently, Russia has considered options to give cryptocurrency legal status by recognizing it as property or property rights so as a digital financial asset or digital rights and a means of payment (money) (Simanovsky, 2018). Today the Central Bank of Russia is developing its own digital rouble project as an additional form of national currency issued by the Bank of Russia in digital form, combining the properties of cash and non-cash roubles and performing the functions of money as a measure of value, a means of savings and a means of payment. The state, represented by the Central Bank, will guarantee the sustainability of the digital rouble. The timeframe for the introduction of cryptocurrency ranges from 2023 to 2027 (Vershinina, Labusheva and Sultaniev, 2021). In 2022 the testing of the digital rouble based on 12 banks selected by the Central Bank of Russia will begin (Dulneva, 2021).

Conclusion

The question of whether the old analogue normality or the new digital normality is more competitive is rhetorical one. But it is not very fast process. In early 2000 with the emergence of e-banking, it also seemed that traditional banking will disappear soon unable to compete with Internet banks. However, traditional banks have mastered internet transactions. Thus, it is too early to conclude about the prevailence of decentralized, trustless, peer-to-peer cryptocurrency, abolishing Central Banks' control over money circulation. At the moment, digital is on the rise and analogue is on the decline. But we do not know what form of digital money

will prevail in the future: centrally issued electronic money controlled by central banks or free of that control decentralized virtual money.

We consider the process of creating the own blockchain-based electronic currencies by states as a form of existence for traditional fiat money. Thus, the phenomenon of cryptocurrencies, which has taken electronic money to a new level of acceptance, is gradually beginning to fit into existing economic realities, rather than expanding them. The modern digital money (the new digital normality) is interpreting in terms of phenomenon of the new economic reality generated by new economic relations and therefore a development of material money (the old analogue normality), still have its own economic significance.

Is digital money more competitive in compare with analogue money? Yes.

Are virtual cryptocurrencies more competitive in compare with electronic currency by Central Bank? The answer is controversial. Probably, not. But it is also possible the transition to multi-layered monetary systems, in which Central Bank money will continue to play a dominant role, but other forms of money will constitute their own layers, meeting new increased needs in the world not only in terms of money forms, but also in terms of their functions.

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