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Marx's monetary theory and its practical value

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Abstract

Purpose – Marx's monetary theory is an important part of Marxist economics and an irreplaceable milestone in the intellectual history of the monetary theory. The purpose of this paper is to summarize the main content of Marx's monetary theory from three aspects: the source and nature of money, the function of money and the historical significance of money.

Design/methodology/approach – Moreover, this paper also gives an extended understanding of Marx's monetary theory from four perspectives: the endogenous credit mechanism of money, the functions of money and demands for money, the financial function of money and the economic and social functions of money.

Findings – Lastly, the present paper discusses the practical significance of Marx's monetary theory from three perspectives, namely, the inspection of "Bitcoin" from the nature and function of money, the definition of demands and the division of supplies at the monetary level, and the prevention of systemic financial risks and the focus of financial supervision.

Originality/value – Marx's monetary theory is an important part of Marxist economics and an irreplaceable milestone in the intellectual history of the monetary theory. However, for a long time, the contribution of Marx has rarely been mentioned in the intellectual history of monetary theory. Even the book, *Political Economy (On Capitalism)*, has been only summarily concerned with the source and function of money in Marx's monetary theory, rather than revealing Marx's outstanding contribution in the monetary theory and the financial connotation of Marx's monetary theory, and expounding its practical significance.

Keywords Marx, Monetary theory, Practical significance

Paper type Research paper

Marx's monetary theory is an important part of Marxist economics and an irreplaceable milestone in the intellectual history of the monetary theory. However, for a long time, the contribution of Marx has rarely been mentioned in the intellectual history of monetary theory. Even the book, of *Political Economy (on Capitalism)*, has been only summarily concerned with the source and function of money in Marx's monetary theory, rather than revealing Marx's outstanding contribution in monetary theory and the financial connotation of Marx's monetary theory, and expounding its practical significance. Marx's monetary theory is extensive and profound. It not only reveals the source, nature, function, classification, financial function and the economic and social function of money, but also provides important guiding significance for the selection of the objectives of monetary policy regulation and the prevention of financial risks. This paper tries to conduct analyses from the above perspectives in order to serve as a modest spur to induce more researchers to come forward with their valuable contributions.



1. The main content and contribution of Marx's monetary theory

Marx's monetary theory is intensively reflected in each volume of *Das Kapital*, and at the same time sporadically manifested in *Karl Marx, Frederick Engels: Collected Works* (volume 26 and volumes 46–49), *The Communist Manifesto*, *A Contribution to the Critique of Political Economy* (Preface and Introduction), *Critique of the Gotha Programme*, and *Epistles of Das Kapital*. And the main content includes the following aspects.

1.1 The source and nature of money

To clarify the source of money is not only the basis but also a difficult point of monetary theory. Marx once pointed out: "In the last decades of the seventeenth century, people already knew that money was a commodity, and that was a big step forward in the analysis of money, but it was only the beginning. The difficulty was not in understanding that money was a commodity, but in understanding how, why and through what way commodity became money[1]."

Marx's revelation of the source and nature of money is based on the labor theory of value. He pointed out that the source and nature of money is determined by the duality of labor in the production of commodity and there is an endogenous contradiction between value and use value. In the development of commodity exchange, this contradiction is externalized into the world of commodity and money. Therefore, in the analysis of simple forms of barter, Marx profoundly said: "The internal opposition between use value and value hidden in commodity is manifested through the external opposition, that is, through the relationship between the two commodities. In this relationship, the commodities whose value is to be expressed are only directly regarded as use value, and the other commodities whose value is to be expressed are only directly regarded as exchange value. Therefore, the simple form of value of a commodity, is the form of manifestation of use value and value contained in the commodity[2]."

In the externalization of this contradiction, commodities of equal value have three characteristics: the use value becomes its opposite, that is, the pattern of manifestation of value; the concrete labor becomes its opposite, that is, the pattern of manifestation of abstract human labor; the private labor becomes its opposite, that is, the pattern of manifestation of direct social labor[3]. In the development of commodity exchange, these three characteristics have been extended from the simple form of value to and throughout the expanded form of value, the general form of value and monetary form. Therefore, "The simple form of the commodity is the embryo of the monetary form[4]."

Through the consistency analysis of history and logic, Marx not only elucidates the source of money scientifically but also reveals the nature of money profoundly, thus laying the foundation of his monetary theory.

Marx's analysis of the source of money is based on and supplementary to his understanding of the nature of money. Compared with previous monetary theories (including British classical economics and vulgar economics), Marx's creative contributions are mainly manifested in the following three aspects.

First, he revealed the endogenous nature of money. Against the background of the rise of commodity economy around the seventeenth century, it was necessary to give an economic explanation to the monetary phenomenon which played an increasingly important role in commodity transactions. Therefore, the monetary metal theory, the nominal theory of money and other related theories came into being successively. The monetary metal theory was first put forward by mercantilism. British economist Stafford (1554–1612) stressed that only gold and silver were the real wealth of a country, and the more gold and silver a country had, the richer it was. He advocated the government should ban the export of gold and silver and increase the import of them; and at the same time, he also opposed to replace the circulation of metallic currency with currency symbol. Although classical economists William Petty (1623–1678), Adam Smith (1723–1790) and David Ricardo (1772–1823) advocated the labor theory of value, and believed that the nature of money was commodity and the natural properties of gold and silver made them the best media of transactions.

However, their labor theory of value is not complete and not thorough (i.e. although they found that commodity has both the use value and value, and also discovered that the commodity value is created by labor, but they failed to reveal the duality of labor that creates commodity), which determines that they could not apply the labor theory of value into the recognition of the source of money and the nature of money, and thus their understanding of money basically stayed in the monetary metal theory. Unlike the monetary metal theory, the nominal theory of money came into being in order to explain the causes and effects of coinage (especially coinage with insufficient values) and paper currency. Nicholas Barbon (1640–1698) believed that coinage was created by the government and its value was determined by the authority of the government. The seal impression on the coinage was not the proof of its weight and purity, but “the instruction of the coinage value.” Hereafter, British economist James Stuart (1712–1780) further argued that the government could assign the nominal value to money. It is not difficult to see that the monetary metal theory did not reveal the endogeneity of money in the two factors of commodity and inherent contradiction of the duality of labor. Moreover, the nominal theory of money regarded money as being produced by government authority outside of commodity exchange. On this account, Marx said: “Political economy has analyzed value and quantity of value (though not sufficiently), revealing the content concealed by the form. But it has never even asked the question: why did this content take this form? Why was labor manifested as value? And why was the amount of labor calculated by labor time manifested as quantity of value of labor products?[5]” Therefore, neither the British classical economics nor vulgar economics can reveal the nature and source of money, let alone combine their historical logic and theoretical logic into an organic scientific understanding.

Second, he revealed the historical particularity of the nature of money. Aristotle of ancient Greece once analyzed the “form of value.” Through the statement that “5 beds = 1 room” is the same as “5 beds = several currencies,” he clearly pointed out that the monetary form of commodity is just the result of the development of simple form of value. However, due to the lack of the concept of “value,” he did not make a more in-depth analysis of the form of value. Compared with Aristotle, British classical economics has even gone backwards. They did not analyze the form of value, which is not only a theoretical defect, but also an inevitable result determined by their bourgeois standpoint. Marx emphasized that: “One of the fundamental weaknesses of classical political economics was that it could not find the form of value that makes value become exchange value from the analysis of commodity, especially the analysis of commodity value. It was precisely the best representatives of classical political economy, like Smith and Ricardo, who regarded the form of value as something completely irrelevant or some existence that did not concern the nature of commodities. It was not just the analysis of quantity of value that captured their attention and there were more profound reasons. The form of value of labor products was the most abstract, but also the most general form of the bourgeois mode of production, which made the bourgeois mode of production a special type of social relations of production and thus with historical characteristics at the same time. Therefore, if the bourgeois mode of production was mistaken for the eternal natural form of social production, it was inevitable to ignore the particularity of the form of value, and thus the particularity of commodity form and its further development – monetary form, capital form and so on[6].” Obviously, the deepening of the understanding of the form of value involves not only the understanding of the historical particularity of the existence of money, but also that of the historical particularity of the capitalist mode of production.

Thirdly, he revealed the nature of money fetishism. “The mystery of money fetishism was the mystery of commodity fetishism, and it has just become obvious and dazzling[7].” Commodity fetishism is a special phenomenon in commodity economy. Marx pointed out that: “There is nothing mysterious about a commodity from the perspective of value of use,

whether it is examined from the point of view of satisfying human needs with its own properties or from the point of view of the fact that it had these properties as a product of human labor[8].” Therefore, commodity fetishism is not derived from the use value of commodity and concrete labor. However, commodity fetishism does not originate from “the content stipulated by the value”; this is because human labor, at any time, is always the consumption of functions of human body, and such human physiological efforts can always be measured by time. Meanwhile, “Once people work for each other in some way, their work takes on a social form[9].” Commodity fetishism is derived from the “the social nature of labor that produces commodity,” namely, “in front of people, the form of commodity reflects the social nature of people’s labor into the nature of labor products themselves and the natural social attributes of these objects. Thus, the social relation between the producer and the aggregate labor force is reflected as the social relation between the objects existing outside the producer. Because of this transformation, the product of labor becomes a commodity, a sensible and supersensible object or social object[10].” The completion form of the commodity world – the monetary form makes “the cover-up of the social nature of private labor and the social relations of private laborers in the form of objects” more universal and secret, creating the illusion that “money makes the mare go.” However, these illusions do not exist in a non-commodity economy. Therefore, “As soon as we escape to other forms of production, all the mystique of commodity world and all the magic black art of labor products on the basis of commodity production disappear[11].”

1.2 Monetary function

Marx believed that money performs five functions, namely, measure value, means of circulation, means of hoarding, means of payment and universal currency. These monetary functions are closely related to commodity circulation. The title of Chapter 3 of volume 1 of *Das Kapital* is “Money or circulation of commodity,” which regards “money” and “circulation of commodity” as equivalent categories. This not only means that money serves the circulation of commodity, which implies that money will lose the practical significance of existence if it cannot meet the needs of commodity transactions; but also means that the mere mention of “circulation of commodity” refers to the function of “money,” which implies that there is no “circulation of commodity” without the function of “money.” This expression of directly connecting “money” and “circulation of commodity” further reflects the theoretical understanding that money is endogenous to commodity economy. On the other hand, compared with the British classical economics and vulgar economics, and even with western economics after the time of Marx, Marx’s analysis of the function of money is the most profound, complete and scientific.

From the perspective of the value measure function of money, Marx’s analysis contains three main points. First, “the first function of gold is to provide commodity world with the materials that express value, or to represent the value of commodity as a quantity of the same name, so that they are the same in quality and can be comparable in quantity. [...] It is only by virtue of this function that gold, a special equivalent commodity, becomes money[12].” What needs to be pointed out is that it is not because of money that commodity can be commensurable; on the contrary, it is due to the fact commodity contains the materialized human labor in general that money can show the value of commodity. Secondly, money represents the value of commodity in terms of price. However, “the value expression of a commodity in gold [...] is its money form or its price,” but “money has no price[13].” Third, because the value of different types of commodity varies greatly in quantity, there must be a monetary or price standard in order to represent their value in terms of price. Marx said: “The value of various commodities is compared and measured with each other as different amounts of gold, so that it is technically necessary to take a certain fixed amount of gold as a unit of measurement of commodity value, which itself is developed into a standard through further division into equal parts[14].”

From the perspective of monetary function of means of circulation, Marx's analysis includes six main points: Firstly, the process of commodity exchange mediated by money transfers the product exchange (W-W) into commodity circulation (W-G-W), leading to the separation of "selling" and "buying" in time, space and subject and breaking "limitations of the time, space and individuals of product exchange[15]." It also makes it possible to sell once, buy many times; sell many times, buy once; sell here, buy there; sell now, buy then; sell by one person, buy by another; and so on. "A whole series of natural social connections developed that were not controlled by the persons concerned[16]," which greatly expanded the space and way that commodity economy develops. Second, the amount of money that performs the function of circulation means is determined by "division of the aggregate price of commodity by the velocity of the circulation velocity of money of the same name," that is, "the amount of money that functions as a means of circulation over each period of time, on the one hand depends on the total price of commodity world in circulation, and on the other hand depends on the speed of flow of the process of circulation that is opposite to this commodity world, [...] these three factors, namely price change, amount of commodity in circulation and velocity of money in circulation may change according to different directions and different proportions. Therefore, the total amount of prices to be realized and the amount of means of circulation that is subject to the total amount of prices may also have a variety of combinations[17]." Marx stressed that "this rule is universally applicable[18]." Among them, as for the relationship between the amount of money in circulation and the price, Marx pointed out: "Commodity, before its exchange with real money, has already been exchanged with money in imagination at the time the price was fixed. And from this simple rule naturally comes the following important economic law: the number of the circulation media is determined by the price, not vice versa. [...] Secondly, you can also infer from here that velocity of circulation can replace quantity; but a certain amount of money is necessary for simultaneous exchanges, as long as they do not themselves cancel out each other as positives and negatives[19]." Third, the amount of money in circulation should be controllable. Marx put forward: "Because the total price to be realized in circulation varies with the commodity price and the quantity of commodity in circulation; on the other hand, since the velocity of the means of circulation in circulation is determined by conditions which do not depend on circulation itself, the quantity of means of circulation must be able to change, to enlarge or shrink – the contraction and expansion of circulation[20]." Fourth, coinage arises from the monetary function of means of circulation. "As with the establishment of price standards, casting coins is a matter of the state. Gold and silver, as coined money, wear the uniforms of different states, but they take off these uniforms on the world market, revealing that the domestic or national sphere of commodity circulation is separate from their general world market sphere[21]." The abrasion of coinage in circulation leads to the separation of the actual and nominal value of money. "Gold as a means of circulation deviates from gold as a standard of price. Therefore, gold is no longer the real equivalent of the commodity when realizing the price of this commodity. [...] The natural tendency of circulation process is to change gold of coins into illusion of gold, or to change the coin into a symbol of its legal metal content[22]." Fifth, the separation of the existence of metal and the function of coinage accelerates the birth of paper money. Marx said: "There is a hidden possibility in the circulation of money, that is, the coinage function of metal money can be performed alternatively by tokens made of other materials or symbols." "The purely symbolic nature is somewhat hidden in metal money tokens, but completely exposed in paper money[23]." Obviously, paper money is produced from the circulation function of metal money. Sixth, the circulation of paper money still reflects the laws of circulation of money. Marx pointed out: "The special rule of paper circulation can only arise from the relation that paper money is the representative of gold. The rule is simply that the issuance of paper money is limited to the amount of gold (or silver) it symbolically represents in

actual circulation [...]. If the issuance of money exceeds its limit, that is, it exceeds the number of gold coins of the same name that can be circulated, then even if there is no risk of credit loss, it only represents the amount of gold in the commodity world determined by the inherent laws of the commodity world, that is, the amount of gold it can represent[24].” The reason why paper money, which has little real value, can function as a means of circulation is because “in the process of continuous exchanges of money, it is enough to have the symbolic existence of money [...]. Money, as a transient objective reflection of commodity price, performs its functions only as its own symbol, and can therefore be replaced by symbols[25].”

From the perspective of monetary function of means of hoarding, Marx's analysis includes three main points. First, money is converted into the hoarding of money when it is not exchanged for commodity in circulation. “As soon as a series of morphologic changes of commodity are interrupted and the sale of them is not followed by the purchase, money will cease to flow,” “and therefore money hardens into the hoarding of money, and the seller of commodity becomes the hoarder of money[26].” Therefore, the hoarding of money is a form of the existence of money. Second, in commodity economy, money represents social rights and wealth. “With the expansion of commodity circulation, the power of money – the absolute social form of wealth available at any time – increases day by day.” Therefore, the hoarding of money becomes a means to accumulate social wealth and expand social rights. “The desire of the hoarding of money is by nature endless[27].” Therefore, the phenomenon such as diligence, thrift and meanness also appeared. Third, the hoarding of money plays a role of reservoir in regulating the amount of money in circulation. “In order to make the amount of money in actual circulation compatible with the saturability of the circulation domain, the amount of gold and silver available in a country must be greater than the amount of gold and silver that can perform the function of coinage. This condition is realized by the form of the hoarding of money. The impounding reservoir of money is both a drainage channel and feeder canal for money in circulation, therefore money never overflows its circulation channel[28].”

From the perspective of monetary function of means of payment, Marx's analysis includes four main points. First, the monetary function of means of payment comes from the purchase on account and sale on account in commodity transaction, among which lies the commercial credit relationship of credits and debts. Marx said: “With the development of commodity circulation, the relation that causes the separation between the delivery of commodities and the realization of commodity price in time also developed. [...] One owner of a type of commodity sells his existing commodities, while another owner of a type of commodity simply buys the commodity as a representative of money or as a representative of future money. The seller becomes the creditor and the buyer the debtor. Because of the change of morphologic forms of commodities or the development of the form of value of commodities, money has acquired another function, that is, money becomes a means of payment[29].” Second, the function of means of payment leads to the change in the amount of money needed in circulation, that is, the amount of money in circulation should subtract the amount of commodity realized by means of payment. Marx pointed out: “Now let's examine the total amount of money in circulation over a given period of time. Assuming that the velocity of circulation and the velocity of payment are already known, the total amount is equal to the total price of the commodities to be realized plus the total payment due, minus the payments that cancel out each other, and, finally, minus the number of times that the same money alternately acts as a means of circulation and a means of payment[30].” The emergence of means of payment reduces the amount of money needed in the circulation of commodity and improves the efficiency of the use of money. Third, credit money originated from the means of payment of money. Marx said: “Credit money is directly derived from the functions of money as a means of payment. And bonds which are obtained from the sale of

commodity are themselves circulated due to the transfer of obligatory right. On the other hand, with the expansion of credit business, the function of money as a means of payment is expanding as well. Money as a means of payment has acquired various unique forms of existence, and occupies a field of large-scale transactions in these forms, while silver and gold coins are mainly squeezed into the field of retail trade[31].” In this process, the financial carriers of business credit (such as commercial paper, commercial promissory note, commercial acceptance bill, etc.) have developed rapidly. Fourth, the development of monetary function of means of payment leads to the change of the realizing form of monetary function of means of hoarding. Marx pointed out: “With the development of money as a means of payment, it was necessary to accumulate money in order to pay debts when they came due. And with the development of bourgeois society, the means of hoarding of money as an independent form of wealth disappeared, while the hoarding of money as a means of reserve fund of payment increased[32].”

From the perspective of the monetary function of universal currency, Marx’s analysis includes five main points. First, under the condition that precious metal serves as monetary material, once the currency goes beyond the scope of a country, it will return to the form of “lump” or “weight” of precious metal, and the price standard, coin, fractional currency and symbols of value determined by its domestic system will no longer play a role. Therefore, “the way money exists fits into the concept of money[33].” Second, in the world market, money is diversified rather than unified. Marx said: “In the field of domestic circulation, only one kind of commodity can act as the measure of value, thus acting as money. In the world market, the measure of double value is dominant, that is gold and silver[34].” The diversity of universal currency not only gives participants of relevant countries and world market more options of currency, but also leads to competition among different currencies in terms of the stability of currency value and market share, which will directly affect fluctuations of exchange rate. Third, the universal currency is not the fifth function of money. It is the expansion of its first four functions in the spatial scale (i.e. the world market); however, the order of importance of these functions has changed. Marx said: “The universal currency performs the function of a general instrument of payment, the function of a general instrument of purchase and the function of the absolute social embodiment of general wealth. Its primary function is to balance the international trade balance as a means of payment[35].” Thus, in the world market, the monetary function of the means of circulation declines and the monetary function of the means of payment rises, as compared with the function of money at home. Fourth, the monetary function of means of hoarding has taken on new connotations. Marx pointed out: “Every country needs to have reserve fund for both domestic circulation and the world market circulation. As a result, part of the function of the hoarding of money comes from the function of money as a means of domestic circulation and payment, and part comes from the function of money as universal currency. In the latter, there is always a need for real money commodities, the real gold and silver[36].” The centralized hoarding of gold and silver (money) in a bank is generally limited to “the minimum required for it to perform various special functions.” Therefore, “if the hoarding of money in the reserve stock is much higher than the average, then it is a sign that the flow of commodity is stagnant, or that the flow of morphologic change of commodity is interrupted[37].” Fifth, under the condition of precious metal currency, the value of gold and silver as monetary materials is determined by human labor. In the world market, “the application of the law of value at the international level will have greater changes due to the following situation: as long as countries with relatively high production efficiency are not forced by competition to reduce the offering price of their commodities to a level equal to their value, the national labor with higher production efficiency is also counted as more intensive labor in the world market.” Therefore, “The more developed a country’s capitalist production, the greater the intensity and productivity of its national labor, and the greater it

exceeds the international level. Therefore, different quantities of the same commodity produced by different countries in the same labor time have different international values, which are reflected in different prices, that is, different amounts of money according to their respective international values. Therefore, the relative value of money is smaller in countries with more developed capitalist modes of production than it is in countries with less developed capitalist modes of production[38].”

1.3 The historic significance of money

According to Marx, money is the product of commodity economy. Under the condition of non-commodity economy, the general human labor does not manifest itself as value, and there is no contradiction between use value and value, concrete labor and abstract labor, social labor and individual labor, so there is no money. From the perspective of history, the society of non-commodity economy includes the imaginary Island of Robinson and self-sufficient production of farmers at the European Middle Ages and so on[39]. Obviously, the commodity economy did not exist at the beginning of history of mankind, nor did money exist at the beginning of the history of mankind.

As long as there is a commodity economy, money must exist. In response to a series of negative effects caused by money, Proudon and the French utopian socialists put forward the idea of issuing labor vouchers or hourly coupons to replace money. Marx pointed out: “Assuming that the premise that price of commodities is equal to the exchange value of commodities has been fulfilled, if the balance of supply and demand and the balance of production and consumption are carried out in the proportional production in the final analysis (the so-called distributive relationship is itself the relationship of production), then the monetary affair would become completely secondary, especially such problem like the issuance of tickets (either blue or green, either iron or paper), or some other forms of social bookkeeping[40].” But the problem is that in commodity economy, these assumptions of “balance” do not exist; and they must be realized through monetary function.

Marx pointed out: “In a collective society based on the common ownership of means of production, producers do not exchange their own products; the labor expended in the production of commodities is not represented as the value of commodities and the properties of something which they possess.” Therefore, money would no longer exist. “Every producer, after making all deductions, receives from society exactly what he has given to it. And what he has given to society is the amount of his individual labor. For example, the day of social labor is made up of all hours of individual labor, and the time of individual labor of each producer is the part that he provides for the day of social labor. He receives from society a certificate of how much labor he has supplied (minus his labor for the social fund), by which he receives from the social stock a means of consumption equal to the amount of labor he supplied[41].” Therefore, there is no commodity economy and no money in this society. Since money does not last forever, but exists in a special stage in human history, the existence of capitalism cannot be permanent, and it is only a special historical period.

2. The extended understanding of Marx's monetary theory

Marx lived in the rise of the historical period of the first industrial revolution, the level of economic and financial development and complexity was far lower than today. At the same time, Marxist economics mainly discusses and reveals the essential characteristics of capitalist economy and the internal laws and historical inevitability from its development to its extinction. As a result, Marx did not relate explicitly many of the underlying mechanisms behind monetary and financial phenomenon in a direct way, but included them in his monetary theory implicitly so as to leave for future generations for further understanding and elucidation. This implies that to grasp Marx's monetary theory systematically and completely, we should further understand its contents at a deeper level.

2.1 Endogenous credit mechanism of currency

Does money have an endogenous credit mechanism? This is a major theoretical problem that has not been resolved so far in the monetary and financial theory. After discussing the function of money, the western book *The Economics of Money, Banking and Financial Markets* turns to the content of “debt” and “interest rate”[42]. The domestic book, *The Economics of Money and Finance*, also turns to the content of “credit” and “interest rate” after discussing “money and monetary system”[43]. But among the functions of money, there is no function of “lending money” or obtaining “interest rate.” On the other hand, in practice, the development from precious metal to credit money is a natural process. However, the origin of credit mechanism of money has not been theoretically explained in accordance with financial mechanism. In the same way, money has been used for lending and borrowing for thousands of years, but theory fails to explain adequately the mechanism of “debt and credit” of money. In fact, in the process of analyzing the value form and exchange of money, Marx has studied the endogenous credit mechanism of money.

From the perspective of the aggregate or expanded form of value, 20 yards of linen = 1 jacket (or 10 pounds of tea, or 40 pounds of coffee, etc.)[44]. In the exchange, if the producer of linen needs jacket or the producer of jacket needs tea instead of linen, then the exchange of linen and jacket cannot be realized. If this process continues, then the commodity economy will be difficult to develop. To enable the exchange of commodity to be carried out, the producers of linen might first exchange linen with tea, and then tea with jacket. In doing so, “linen no longer just has a social relationship with another commodity through its form of value,” “the accidental relationship between two individual owners of commodity disappears”[45]. Instead, linen was exchanged with a variety of commodities. In the general form of value, the order of the left and right of the equation changes, a jacket (or 10 pounds of tea, or 40 pounds of coffee, etc.) = 20 yards of linen, that is, the value of various commodities is expressed through “linen,” and linen becomes the universal equivalent.

The underlying problem is not that the order of the left and right of the equation of general form of value has changed relative to the aggregate or expanded form of value, but that what mechanisms are contained in them? Suppose the producer of jacket needs tea and not linen, and the producer of linen needs jacket, then, how dare the producer of jacket exchange jacket with linen? The possible explanation is that he believes that linen could be exchanged with tea, and thus the trade of something (jacket) based on trust for something else (linen) takes place. This kind of behavior has already implied the actually “fiduciary relationship.” What is “fiduciary relationship”? Fiduciary relationship, in its most basic sense, refers to the contractual relationship reached in terms of the conditional use (or transfer) of a certain item (or resource) on the basis of mutual trust and the behavioral process of performing the contract. In this case, it is manifested as the process that the producer of jacket, believing that linen could be exchanged for tea, gives his own jacket to the producer of linen. In this process, it is easy to raise another question: what will happen if linen cannot be exchanged with tea after jacket is exchanged with linen? There are two possible outcomes: one is that the producer of jacket finds the producer of linen and returns the linen to him and gets back the jacket. Another possibility is that the producer of jacket tells other producers that linen does not have the function of exchanging with other commodities, which makes it lose its status as a universal equivalent through word of mouth. In the course of history, the second scenario is more likely to occur. Under this circumstance, the producer of jacket transfers his products to the producer of linen, but does not obtain the result of exchanging linen with tea, so his/her demand is not satisfied. Nevertheless, he/she acquires linen of collateral nature. For the producer of jacket, linen cannot meet the needs at present, but it is a useful object, and may satisfy some future demands (such as the making of a jacket). Therefore, this collateral is still useful. According to various commodities listed by Marx in the aggregate (or expanded) value form and the

general form of value, compared with fresh products such as fruits, vegetables, aquatic products and livestock, linen is easy to preserve and not easy to change in quality and quantity in a short period of time, and therefore is good object to serve as collateral.

Marx pointed out that the contractual relationship was carried out throughout the exchange of commodity. "In order for these objects to relate to each other as commodities, the custodians of commodity must relate to each other as persons who have their own will embodied in these objects. Therefore, one party must conform to the will of the other party, that is to say, each party shall act only by the consent of both parties. Only by doing so, each party can deliver its own commodities and occupy the commodities of others, [...] The relationship of right and right with contracted form (whether it is fixed by law or not) is a relationship of will that reflects the economic relationship[46]." In this remark, Marx used the words "delivery" and "contract," implying that some kind of "credit" mechanism already existed in the exchange of these commodities. Therefore, the credit mechanism is not artificially added to money from the outside, but endogenous in the formation process of money. Under the condition of precious metals (especially coinage), the issuance of money supported by government credit is, in fact, only the externalization of the internal credit mechanism of money. On the other hand, credit to people (and even to governments) will eventually translate into credit to objects. Just as Marx pointed out, "the symbol of money itself needs to be recognized by the objective society, and the symbol of paper money is recognized by forced circulation[47]."

2.2 The functions of money and the demands for money

Literally, Marx did not directly use the word "demand for money." As a result, western money demand theories normally begin with Fisher equation, and then list the understanding of the Cambridge equation, Keynes's liquidity preference, Friedman's permanent income hypothesis and money demand function and put Marx's monetary theory outside the scope of demand for money. But in fact, Marx's theory of function of money is his theory of demand for money, and compared with Fisher equation, Cambridge equation, Keynesian theory and Friedman's theories, Marx's theory of demand for money is more comprehensive and systematic.

In terms of the amount of money required in circulation, Fisher equation and Cambridge equation consider the total transaction price of various kinds of commodities (determined by the total amount of various kinds of commodities and the price of various kinds of commodities), velocity of money. Fisher equation is represented as: $MV = PT$ (here M refers to the amount of money required in commodity circulation in a certain period of time, V refers to the velocity of money, P refers to the weighted average of prices of various kinds of commodities and T refers to the number of transactions of various kinds of commodities). The Cambridge equation is represented as: $M = kPY$ (here Y refers to the total income, P refers to the general price level and k refers to the proportion of wealth held in monetary form to the nominal total income). Keynesian theory takes the transaction motive, precautionary motive and speculative motive into consideration. Friedman's theory follows the Cambridge school and considers the money required for transaction in assets. Different from these theories, Marx's theory of demand for money takes into account not only the amount of money required in circulation, but also the demand for payment of money in the transactions of manufacturers. Therefore, according to Marx, the amount of money required in commodity circulation = the amount of money required in retail commodity + the amount of money required for wholesale trade, which is more practical than the western money demand theory following Fisher.

From the perspective of the hoarding of money, in Marx's era, the way of hoarding money was mainly manifested in the forms of "handholding" and "cellaring," but Marx had already seen the situation of hoarding money as "wealth" and the contradictions involved in it.

He said there is no end for the desire to hoard money. "In terms of quality, or the form, money is infinite, that is to say, it is the general representative of material wealth, because it can directly transfer into any commodity. In terms of quantity, however, each actual amount of money is finite and therefore can only function as a means of purchase of limited effect. The contradiction between the finite quantity and the infinite quality of money compels the hoarder of money to engage in the accumulated labor in a Sisyphus style[48]." The hoarding of money is a demand for money by money hoarders. With further development of finance, the way of hoarding money has changed from "cellaring" to "deposit," hence producing the phenomenon of monetary multiplier and derivative money created by commercial Banks. But in western money demand theories, this demand for money caused by the hoarding of money disappeared, which is a step backward from Marx's monetary theory.

From the perspective of universal currency, for a closed economy or a country whose currency is not a type of international currency, the demand for money can mainly focus on domestic demand; but for an open economy or a country whose currency is a type of international currency, it is not enough to consider domestic factors, but also international demand. In the process of gaming between economic globalization, multilateralism and unilateralism, the international factors of demand for money are of great significance. Although Marx's monetary theory was established in the middle of the nineteenth century, he had revealed the international demand for money and specifically proposed the function of "universal currency." In contrast, the monetary theories following Fisher had not discussed international currency (or world currency), which was another step backward.

It is not difficult to see that Marx's money demand theory is included in his money function theory. He argued that the aggregate demand for money = the demand for transaction money (including the demand for payment function) + the demand for hoarding of money + the demand for world currency, which laid a scientific foundation for the classification (or stratification) of money.

2.3 The endogenous financial function of money

In the process of analyzing the source of money and the function of money, Marx actually got involved in the analysis of a series of financial functions. Such analysis includes.

First, the allocation of resources across time and space. Robert C. Morton, the Nobel Prize winner in economics, held that "providing a way to transfer economic resources across different times, regions and industries" is a core function of the financial system[49]. This function is actually based on the financial function that money has to allocate resources across time and space. Marx has pointed out that after the separation of money from the commodity world, the "unitary behavior of buying and selling" in barter is split into two independent behaviors of "selling" and "buying," which not only leads to the separation of "selling" and "buying" in terms of time, space and subject, breaking the "constraints of time, space, and individual in product exchange," but also leads to the "development of a whole series of natural social connections that are out of the control of parties concerned." The function of allocation of economic resources across time and space of financial system is a result of such "social development." It is conceivable that if money does not have the function of commodity transaction across time and space, how can various kinds of financial products have the ability to allocate resources across time and space (or, on what basis are various kinds of financial products able to allocate resources across time and space)? On the other hand, in reality, no matter how complex the term structure of financial products is, the realization of the allocation of resources across time and space must be achieved through the transaction between money and commodities across time and space. Therefore, when Marx pointed out the capability of money to transact across time and space, he actually pointed out the financial function of money.

Second is payment and liquidation. Robert C. Morton argued that “providing means of liquidation and settlement payment so as to complete transactions” is also a core function of the financial system, and this function is actually what Marx called the monetary means of payment. If money does not have the function of payment and liquidation, it is impossible for finance to perform the function of payment and liquidation. Therefore, the function of payment and liquidation of finance is actually another expression of the function of payment and liquidation of money. In other words, the function of payment and liquidation of money is actually a financial function.

Third is the primary driving force of economy. Marx pointed out that “commodity production takes commodity circulation as its premise, and commodity also takes the form of money in commodity circulation, which takes money circulation as the premise. This duality of commodity both as commodity and money is the law that products are expressed as commodities. Similarly, capitalist commodity production – whether examined socially or individually – requires capital in the form of money or monetary capital as the first and continuous driving force of every newly established enterprise[50].” In commodity economy, the finance-oriented resource allocation and the promotion of finance to the operation of real economy (or real enterprises) are actually based on the function of money. The purchasing power of money determines that it can be exchanged with both consumer goods and capital goods, which leads to the circulation of money and capital (i.e. G-W...P...W-G). Without this kind of function of money, financial mechanism cannot play a role in economic operation and development.

2.4 Economic and social functions of money

Marx, in many of his works, discussed the economic and social functions of money from multiple perspectives, which include the following.

First, money advocates equality. Marx said that “commodities are inherently egalitarian [51].” This equality mechanism is fully reflected in money. Its underlying mechanism is that money is homogeneous, which can only be distinguished by its quantity. Since money is determined by its homogeneity, it has no difference of hierarchy. “Just as all the qualitative differences in commodities have been wiped out in money, money, as a radical egalitarian, has wiped out all the differences[52].” Therefore, money does not recognize a variety of hierarchical system left by the feudal society. “It mercilessly cut off all the feudal bonds that tie men to their natural masters. It leaves no connection between man and man but naked interests, and no connection except the callous ‘cash transaction[53].’” It is under such an equality mechanism that market competition can be carried out, resource allocation efficiency can be improved and commodity economy can develop rapidly.

Second, social power becomes private power. Marx held that as the coagulum of value of abstract human labor in commodity economy, money represents social power. The exchange of commodities and money is a process in which private labor is recognized by the society, which is an adventurous leap. “If the leap doesn’t work, it’s not the product that’s broken, but the owner[54].” The possession of money also implies the possession of the social power to buy commodities, and the dominant power that determines the success of commodity exchange. “But money itself is a commodity, an external object that can be the private property of anyone. In this way, social power becomes private power[55].” Thus, not only labor products can be exchanged for commodities and money, but also non-labor products[56] and even labor force, conscience and morality can be traded. “Everything, whether it’s a commodity or not, can be turned into money, and everything can be bought and sold[57].”

Third, the potential for crisis lurks in the performance of the function of money. On the one hand, the performance of the function of monetary payment results in the debt chain between commodity producers, and between producers and consumers, which sows the

seeds of monetary crisis. Marx pointed out that “money as a means of payment function contains a direct contradiction. In the case of offsetting payments, money simply performs the conceptual function of calculating a measure of money or value. [...] This contradiction is particularly apparent at the moment when the crisis of production and the crisis of commerce are called monetary crisis. Such a monetary crisis can only occur where the chain of payments and the artificial system of offsetting payments have been fully developed one after another[58].” On the other hand, under the condition that the function money comes into play, the scale of commodity production is constrained by the quantity of money supply. Under the condition that the quantity of money supply is less than the quantity of money required in commodity circulation (i.e. deflation), economic crisis may occur, which can even be extended to the international field. On this account, Marx pointed out: “The dominance of exchange value over production is shown by an individual as follows: his production (1) is not based on his needs, and (2) does not directly meet his needs. In short, the commodities produced by an individual can only be converted into money for his own use. But all this is manifested as follows: the production of the whole country is measured neither by its immediate needs nor by the distribution of the factors of production necessary for the expansion of reproduction. Thus, the reproduction process does not depend on the production of mutually adapted equivalents within the same country, but on the production of those equivalents in foreign markets, on the power of the world market to absorb them, and on the expansion of the world market. As a result, there is a growing likelihood of imbalance, and thus of a crisis[59].”

3. The practical significance of Marx’s monetary theory

Since the publication of the first volume of *Das Kapital*, Marx’s monetary theory has a history of more than 150 years. In this period of time, both international economy and a single country’s economy (including developed countries and developing countries) have changed greatly, such as the development of monetary carrier from precious metals to papers and electronic notes. However, the basic principles revealed by Marx’s monetary theory are still shining with theoretical light and play an important role in guiding current practice. For example.

3.1 *The investigation of “Bitcoin” from the perspective of the nature and function of money*

In November 2008, Satoshi Nakamoto created Bitcoins using blockchain technology, which sparked a heated debate about “subverting currencies.” Over the past decade, the price of Bitcoin has risen sharply (it was once close to \$20,000 per Bitcoin), with its amplitude of fluctuation exceeding those of various asset prices in the same period. At the same time, more than 3,000 kinds of currencies have been identified as “cryptocurrencies,” with some predicting a “5000% increase in the cryptocurrency market over the next 10 years[60].” How to understand Bitcoin has become an inevitable and important practical problem in the modern monetary theory. According to Marx’s monetary theory, although Bitcoin takes the name of “currency,” it is neither actually a type of currency, nor can it function as a type of currency.

From the perspective of the nature of money, Marx believes that money is in essence the coagulation of human abstract labor and the materialized expression of economic and social relations of commodity. This economic relationship gradually phase out precious metals in the further development of the currency carrier, but both paper money and electronic money are deeply stamped with the liabilities of the currency issuer (such as the Central Bank or the Treasury), which is supported by government credit and confirmed by law. In contrast, cryptocurrencies, such as Bitcoins, are only technological products similar to the game, which are not derived (or created) from economic and social relationship. They are of various types, but have not so far become liabilities to the issuers, and they are lacking in most basic credit body. Therefore, the substantial

depreciation (e.g. from nearly \$20,000 per Bitcoin to \$3,100 per Bitcoin) caused huge losses, and their holder had no room for complaint.

From the perspective of the function of money, the most basic function of money is to realize the transaction of commodities, that is, to serve as the medium of exchange. To be a medium of exchange, money must meet at least five requirements. The first one is the monetary standard. For a wide variety of commodities (and services, the same hereinafter), determined by different values, in order for money to represent the value of a commodity as a price, it is technically necessary to divide money into certain subdivisions (e.g. US\$ is divided into dollars and cents, RMB is divided into yuan, jiao, fen, etc.). But the Bitcoin does not have such a monetary standard of division, which means it does not have the most basic conditions to be money in terms of its function as a measure of value. The second requirement is the amount of money in circulation. In economic development, the quantity of commodities has a trend of continuous increase, which determines that the amount of money put into circulation should be able to meet the needs of commodity circulation. Historically, a decisive factor in the withdrawal of precious metals such as gold from the monetary category was that the increase in their number was far less than the increase in the number of commodities to be exchanged, which could not satisfy the expansion of commodity transaction. Bitcoin, by contrast, was limited to 21m coins by its creator from the very beginning, and it has not been fully mined so far. Even if it had been fully mined and put into circulation, such a limited number could not meet the needs of commodity transaction. The third requirement is monetary stability. In commodity transactions, the amount of money in circulation represents the demand, and the stability of value of money is the basic premise of transactions. Therefore, regulating the amount of money in circulation has become a basic orientation of monetary policy. In contrast, the drastic fluctuations of transaction value and the lack of the most basic stabilization mechanism make it impossible for the Bitcoin to become a type of transaction money. The fourth requirement is the hoarding of money. The ability to withdraw from circulation and become a hoarding of money is a basic function of money. In modern financial system, the “deposit” methods are more often selected for the hoarding of money, which is conducive to hoarding and obtaining return of interest rate. However, Bitcoin itself lacks a mechanism of hoarding, since no bank has offered the deposit method of Bitcoins. The fifth requirement is the means of payment. On the basis of the above analyses, money can play a role through the payment mechanism in large transactions or wholesale transactions. Under the condition of electronic money, the function of payment of money can also be realized through the internet or mobile phones in the retail sector. Since Bitcoins lack the above functions, they are certainly lacking in the ability of payment, and therefore cannot be a type of money.

In fact, Bitcoin is just a kind of virtual financial asset, belonging to the object of financial transactions, with the same category as the trading index initially set up by Lehman Brothers or other objects of virtual financial transactions. More than 3,000 types of money have been identified by encryption, far more than the number of countries and regions all over the world, and their transaction values have fluctuated and rarely been “stable,” proving that these products labeled with the name of money are actually financial instruments. Compared with ordinary financial instruments (or financial products), these virtual “currencies” have two characteristics. First, they are created by institutions (even virtual ones without legal identities) that do not have a credit function or cannot assume any credit obligations or legal liabilities for the “cryptocurrencies” they create. Second, these “cryptocurrencies” use the internet to conduct global transactions and break through the legal restrictions and financial regulations of relevant countries (or regions), becoming a borderless financial product and trading market, and providing a new channel for the global flow of funds. Therefore, they are favored by some international financial market investors and those who try to transfer funds across the border on the one hand, and they are also tightly controlled by financial regulatory authorities of various countries and regions on the other.

3.2 *The demand definition and supply division of the stratification of money*

In order to effectively grasp the direction, quantity and velocity of the flow of money in economic and financial operation and improve the scientific, accurate and targeted implementation of monetary policy, it is necessary to scientifically define and divide various levels of money. In practice, central banks of various countries usually define different types of money supply and then divide money supply into different levels based on of needs of monetary policy regulation and liquidity situation. China's current money supply are statistically divided into three levels, namely, M0, M1 and M2, and their meanings are as follows: M0 (also known as "money in circulation") refers to the cash in circulation (banknotes and coins) issued by the Central Bank; M1 (also known as "money") refers to M0 + the current deposits of entity enterprises and various institutions; and M2 (also known as "money and quasi-money") refers to M1 + the fixed time deposits of entity enterprises and various institutions + the savings deposits of urban and rural residents + the fiscal deposits + the customer deposits of securities company + others. The division of these three levels of money roughly corresponds to the function of circulation means, payment means and hoarding means of money.

This way of division of different levels of money supply was first introduced in the third quarter of 1994, followed by a number of complementary adjustments according to economic and financial practices (e.g. in July 2001, the customer deposits of the securities company are included in the category of M2 and in October 2011, the deposits of housing provident fund centers and deposits of non-deposit financial institutions in deposit financial institutions were included in the categories of M1 and M2). With the widespread use of electronic money and the development of internet payment and mobile payment, the division of different levels of money supply is more and more difficult to adapt to the changing practice situations. An outstanding example is that the part of "current deposits" of the saving deposits did not have a direct transaction function, and urban and rural residents needed to convert it into cash (and coins) from the deposit account in the name of "withdrawal," and then this money could enter the transaction process. However, nowadays, the "current deposits" of urban and rural residents can be easily involved in all kinds of transactions and payments through bank cards, internet, mobile phones and other carriers. Therefore, it is not appropriate to include the current deposits in the category of M2. In this context, the People's Bank of China has to shift the intermediate target of money policy regulation to the growth rate of M2. M2, however, contains a large quantity of hoarding of money in the name of "fixed time deposits," which does not get involved in activities such as the transaction and payment of commodities, services and financial products. At the same time, due to China's high savings rate and insufficient supply of long-term financial products, the amount of "fixed time deposits" is large and with a high proportion (In 2018, of the 70.051792 trillion yuan household deposits, the amount of "fixed-time deposits and other deposits" was 44.191725 trillion yuan; of the 54.741701 trillion yuan non-financial enterprise deposits, the amount of "fixed-time deposits and other deposits" was 32.655668 trillion yuan. According to the above data, the proportion of fixed time deposits reached 61.58 percent. In the same period, the M2 balance was 180.166558 trillion yuan, and the balance of "fixed time deposits and other deposits" in "household deposits" and "non-financial enterprise deposits" was 76.847393 trillion yuan, accounting for a proportion of 42.65 percent.). Therefore, regarding M2 as the intermediate target of money policy regulation will greatly reduce the degree of precision of regulation and moreover, it is also possible to misjudge the liquidity situation in economic and financial operation due to the misguidance of money supply data, which causes the orientation, strength and rhythm of monetary policy regulation to deviate from the real requirements of economic and financial practice, leading to the deviation of theoretical analyses and empirical results.

According to Marx's money function theory, the division of different levels of demand for money can be defined in the order of means of circulation, means of circulation + means of

payment, means of circulation + means of payment + means of hoarding, means of circulation + means of payment + means of hoarding + universal currency. Therefore, from the perspective of balance between money supply and demand, money supply can be divided into the following levels: M0 is the money in circulation (banknotes + coins) issued by the Central Bank, which is the quantity of money represented by cash in transaction of commodities, services and financial products; M1 is M0+ current deposits of various subjects (including finance, etc.), which refers to the amount of money in circulation after the function of payment is added; M2 is M1+ fixed time deposits of various subjects, which is the domestic money supply after the function of hoarding of money is added (i.e. money in the broad sense in China); and M3 is M2+ foreign RMB deposits. As the internationalization of RMB increases, the demand for foreign RMB deposits will increase significantly, and therefore the amount of money supply that exceeds M2 will see obvious increase. Because the hoarding of money cannot get direct access to different kinds of transactions (including transactions of commodities, services and financial products), its increase in amount will not directly affect the price of different products (including commodity, labor and financial products). Consequently, the focus of the regulation of money policy can be shifted on the direction, quantity and velocity of the flow of M1 and so on, which conforms to both the specifications of Marx's theory and the reality of economic and financial situations.

3.3 The prevention of systemic financial risks and the focus of financial supervision

Preventing and resolving financial risks is an eternal topic in economic and financial operation. In 1961, William Sharp put forward the recognition of systematic risk and non-systematic risk in the asset portfolio theory, emphasizing that the risk that can be spread through asset portfolio belongs to the non-systematic risk and the risk that cannot be spread belongs to the systematic risk. The systemic risk is mainly caused by macroeconomic factors, including tax risk, interest rate risk, exchange rate risk and so on. Since then, discussion on the systemic financial risk is basically limited to this category. The outbreak of the American financial crisis in 2008 has become a typical case of systemic financial risks caused by micro-subject activities. This internal mechanism of systemic financial risks and financial crises caused by micro-entities is mainly based on the debt contagion and the break of debt chain. From the perspective of financial transmission mechanism, debt contagion mainly spreads through the payment chain and the break of debt chain is mainly manifested in the impeded payment chain caused by payment difficulties. This situation has already been touched upon in Marx's discussion on money as means of payment. Although Marx did not use the term "debt chain," he clearly identified "creditor" and "debtor," stressing that "the form of money here – the relation between creditor and debtor having the form of money relation – simply reflects the deeper confrontation of conditions of economic life[61]." What is different is that, under the conditions at that time, debt chain was mainly carried out in the business credit. Therefore, the payment difficulties might not only lead to financial crisis of microcosmic subject and then with further extension to economic crisis, but also aggravate monetary crisis through the difficulty of liquidity payment in economic crisis. Nowadays, debt chain has extended to all aspects of bank credit and market credit. Therefore, the "assets-liabilities" of various economic entities are intertwined in a more complex way, forming a huge unitary network of honor and disgrace. In this network system woven by debt chain, the higher the debt ratio is, the more likely the debt default will be, the more fragile the finance will be, and the more likely the outbreak of systemic financial venture will lead to financial crisis. On the other hand, from the perspective of the capital operation path, this kind of debt chain is mainly formed by monetary payment link. Therefore, to guarantee the smooth payment and settlement or prevent the rupture of payment and settlement link becomes a key point to prevent systematic financial risks.

With the development of electronic money, the proportion of money in the form of banknotes and coins to the total amount of money is getting smaller and smaller. In contrast, the amount of money in circulation promoted by means of payment, such as bank network, internet and mobile phone, has become the main part of the total amount of money, which has the characteristics of clarity, convenience, celerity, high frequency and so on. Therefore, financial accelerator, financial contagion and financial fragility are more obvious. Based on Marx's theory that the payment function of money leads to economic and monetary crises, financial supervisory authorities should pay special attention to systemic financial risks caused by the phase of monetary payment. Therefore, on the one hand, it is necessary to strengthen the construction and supervision of the payment and settlement system, ensure the smooth and orderly development of monetary payment and settlement, and prevent liquidity rupture and financial risks caused by the inherent barriers of payment system. On the other hand, it is also necessary to strengthen the regulation of monetary policy on liquidity situations, disentangle the transmission mechanisms and channels of monetary policy, prevent the drastic fluctuations of financial market and shortage of fund in the entity economy, and ensure the flow of liquidity to the entity economy through channels of financial institutions such as commercial banks and financial markets.

"Deleveraging" is a process of reducing the excessive proportion of debt assets, which is essential to the prevention of systemic financial risks. However, it should neither be carried out in a hurry, nor should it be accomplished at one stroke. The internal mechanism lies in that, under the condition of indirect finance, the liquidity in economic and financial operation mainly depends on the loans provided by commercial banks and other financial institutions, which are not only debts but also payment funds of real enterprises. If we blindly pursue "deleveraging" and excessively tighten the loan funds, the real enterprises will face payment difficulties and the rupture of payment chain caused by insufficient funds, which will lead to the turbulence of economic and financial operation and even monetary crisis. For this reason, deleveraging must be carried out step by step and under the condition of ensuring the stable operation of payment chain of entity enterprises.

Notes

1. Quoted from Marx (1975a, b, p. 110).
2. Quoted from Marx (1975a, b, p. 76).
3. See the quotation from Marx (1975a, b, pp. 71-73).
4. Quoted from Marx (1975a, b, p. 87).
5. Quoted from Marx (1975a, b, pp. 97-98).
6. Quoted from Marx (1975a, b, p. 98).
7. Quoted from Marx (1975a, b, p. 111).
8. Quoted from Marx (1975a, b, p. 87).
9. Quoted from Marx (1975a, b, p. 88).
10. Quoted from Marx (1975a, b, pp. 88-89).
11. Quoted from Marx (1975a, b, p. 93).
12. Quoted from Marx (1975a, b, p. 112).
13. Quoted from Marx (1975a, b, p. 113).
14. Quoted from Marx (1975a, b, p. 115).

15. Quoted from Marx (1975a, b, p. 133).
16. Quoted from Marx (1975a, b, p. 132).
17. Quoted from Marx (1975a, b, p. 141).
18. Quoted from Marx (1975a, b, p. 139).
19. Quoted from Marx (1976, p. 133).
20. Quoted from Marx (1979, p. 164).
21. Quoted from Marx (1975a, b, p. 144).
22. Quoted from Marx (1975a, b, p. 145).
23. Quoted from Marx (1975a, b, pp. 145-146).
24. Quoted from Marx (1975a, b, p. 147).
25. Quoted from Marx (1975a, b, p. 149).
26. Quoted from Marx (1975a, b, p. 150).
27. Quoted from Marx (1975a, b, pp. 151-153).
28. Quoted from Marx (1975a, b, p. 154).
29. Quoted from Marx (1975a, b, p. 154).
30. Quoted from Marx (1975a, b, p. 159).
31. Quoted from Marx (1975a, b, p. 160).
32. Quoted from Marx (1975a, b, p. 162).
33. Quoted from Marx (1975a, b, p. 163).
34. Quoted from Marx (1975a, b, p. 163).
35. Quoted from Marx (1975a, b, p. 164).
36. Quoted from Marx (1975a, b, p. 165).
37. Quoted from Marx (1975a, b, p. 166).
38. Quoted from Marx (1975a, b, p. 614).
39. See Marx (1975a, b, pp. 93-95).
40. Quoted from Marx (1979, pp. 98-99).
41. Quoted from Marx (1971, pp. 12-13).
42. See Chandler (1980).
43. See Huang and Zhang (2017).
44. See Marx (1975a, b).
45. Quoted from Marx (1975a, b, pp. 78-79).
46. Quoted from Marx (1975a, b, p. 102).
47. Quoted from Marx (1975a, b, p. 149).
48. Quoted from Marx (1975a, b, p. 153).
49. See Bodie and Merton (2000).
50. Quoted from Marx (1975a, b, p. 393).
51. Quoted from Marx (1975a, b, p. 103).

52. Quoted from Marx (1975a, b, p. 152).
53. Quoted from Marx (1972, p. 253).
54. Quoted from Marx (1975a, b, p. 124).
55. Quoted from Marx (1975a, b, p. 152).
56. Marx pointed out: "In the labor market, money is always opposite to workers as the form of money of capital, so the owner of money is always opposite to workers as the personification of capital, that is, capitalists." Quoted from Marx (1982, p. 74).
57. Quoted from Marx (1975a, b, pp. 151-152).
58. Quoted from Marx (1975a, b, p. 158).
59. Quoted from Marx (1985, pp.146-147).
60. See "Bitcoin's leading role will be challenged," published in *Reference News*, October 31, 2018.
61. Quoted from Marx (1975a, b, p. 156).

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