General Theory of Money: A New Approach

Rezaie, Mohsen

1 January 2014

General Theory of Money: A New Approach

[1] Mohsen Rezaie

Abstract

Money, credit and monetary markets are interlinked with each other and linked to real sector of the economy. There is clearly no single market called money market, but there are two money markets, asset-money and credit-money markets, that money is created by the interactions between them. This created money would, then, enter into economic activities and to facilitate producing and transacting in the real sector. In other words, money is a heavenly creature that is created through interactions between money markets in the sky of monetary markets that returns to the land of real markets. In other words, monetary intermediaries, like firms, produce money within credit and savings process. In addition, monetary integration takes place by interaction of money markets.

JEL Classification: B22, E41, E50

Key words: Asset-money, Credit-money, Saving, Monetary Theory, Monetary Variables, Monetary Integration.

1- Associate Professor of Economics, Imam Husain University, Tehran.

1- Introduction

What is money and what are monetary funds? Is there cashless economics? Does money mater? How do monetary funds circulate in the monetary and real sectors of the economy? How are monetary funds created? These are the main questions in the monetary theory. Given these questions some unresolved ambiguities are raised about the demand and the supply of money and credit and the effect of monetary frictions. There is some ambiguities about monetary policy and the capability and foundation of regulating of central banks. Clearly the ambiguities shall be resolved in the process of finding the answers to the above questions. We shall explain that orthodox monetary approaches are not able to solve theoretically the problems existing in the financial and monetary sector. According to Woodford (2003) "The conceptual frameworks proposed by central banks to deal with their perceived need for a more systematic approach to policy were, until quite recently, largely developed without much guidance from the academic literature on monetary economics". He points out in another instance that: "Yet the justification of such an emphasis from the standpoint of economic theory may not be obvious." Furthermore, L. Randall Wray (1990) believes that at the beginning of the 21st century, the traditional thought about monetary policy is almost a pure misconception.

It is true that according to Morris and Copland there are financial flows outside economic transactions (Morris and Copland (1949)), but their argument is not supported by sound monetary theory. Recent trends in economics regarding flow of funds, is more of accounting and mathematical nature. Some economists have also observed the existence of flow of funds (Morris and Copland (1949) and Shishido (1956) but have seen the issue from accounting point of view. This article attempts to answer to basic questions regarding monetary theory. These attempts are in line with those of Wicksel, Keynes, Tobin, fisher and New Classical. This article criticizes

their approaches but appreciates the fact that without the foundations laid by those schools, the economic science could not have achieved its present situation.

This article has several purposes: first, it shows there is no particular market called money market, but funds appear in various shapes in various markets. Second, a new definition of money is presented that would lead to better organization of various definition of money. Third, the article attempts to clarify the interaction of various monetary markets. Last, the conceptual framework between monetary sector and its relation to real sector is sketched that shows all monetary theories are particular aspects of a general school.

In sections 1 and 2, definitions of money, monetary markets and monetary variables are presented. In section 3 the relationship between these variables are specified and their relationship to the real sector variables are clarified. Based on this approach, a new general theory of money (MFM) and new monetary model (A-L) are presented. The final section is allocated to the monetary equilibrium and the role of various factors in creation of money and monetary transactions.

2- Money and Money Market

2-1- Demand for money versus holding money

Holding money and demand for money are two different issues. Joan Robinson (1979) and post Keynesians have paid attention to these issues. People need money for current expenditure (Wray (1990)). Demand for money is shown as "tendency to raise the balance to finance expenditure on goods, services and assets." On the other hand, holding money is an indication of "desire for future expenditure and holding a balance between uncertainties as against return".

In economics, there are two separate monetary activities; each of them takes place in its related market. The first activity shows a money market that defines motives for demanding money for transactions. The second activity is also a market that defines holding money for future transaction purposes. Although the two activities are independent, both of them affect the flow of goods and services. Hence the following results are obtained:

- Keeping unspent money occurs in the asset market (that is also a type of money market) because the unspent funds in this market are kept (by converting) into different assets, including money as an asset, and financial asset. In other words, financial assets that are able to store value and create liquidity are also some kinds of money. According to Friedman (1956) it is not possible to draw the border line between money and quasi money (financial assets)." Friedman has said in the same article that "there is a chain of assets that holding them has different degrees and qualities and we relate all of them to the structure of money market and hence make a specific line between money and quasi money." It should be mentioned that the funds that are not spent are kept in the shape of financial assets, including money. The financial assets obtained during one period indicate the funds not spent.

  In this paper monetary asset refers to both quasi money and money.

- The demand for funds is formed in the credit market that is also a type of money market. Following Pathinkin (1965) and Friedman (1981), this paper claims that there is an

independent market for credit. It should be noted that the *term credit includes both the credits from the banking system and from other sources.*

These two different types of monetary markets are explained in the following section.

2-2- Holding cash or not spending the income

Holding money is in the shape of not spending funds or saving money. Hence cash savings include those funds not spent but kept out of current economic activity. According to Turgot (1776) savings are those parts of income that are not spent. Cash savings or incomes not allocated to current expenditures are shaped in two parts:

- Liquidity Preference: People keep a part of their incomes in the shape of hoarding (it is outside the banking institutions) and current deposits for the future transactions.
- Financial Wealth: People keep a part of their unspent in the shape of financial wealth that includes both financial assets and saved money.

Hence if cash balance is held in the shape of financial wealth, it would include both money and quasi money. This is why keeping money away from spending, that is the same as savings in the shape of financial assets, is considered to be an activity that has a monetary market specified to it. In this case, liquidity preference consists of one part and only one type of unspent income. The households keep that part of their income that they do not spend but they save, with the following incentives: 1) return incentive; 2) incentive to make future deals; 3) incentive to manage life and achieve the desired level of welfare; 4) incentive of risk management, and 5) for future transactions. Hence the households convert their unspent money or their savings through financial intermediaries, like banks and non-banking institutions, into deposits (D), cash (C) and securities (s). This means the money held and / or unspent can be defined as below:

$S = D + C + s = M1 + s$ (1)

$s = E + B$

Where M1, E and B are respectively money, equities and bonds. The above assets are called financial assets and / or money assets.

Hence, unspent income or savings are converted into monetary (financial) wealth in a kind of monetary market. People hold their unspent income and / or savings into monetary (financial) assets including cash that would be held for the above purposes. Friedman (1959) concludes that "the results, incentives and related variables are the most useful groups to discover. The most useful method is that money (cash and deposits) should also be considered as one of the assets and be seen in the chain of assets".

This market converts saving into asset, therefore, is a kind of money market. It is asset-money market

Monetary and Real Savings

In conventional economic science, one usually considers real savings, whereas real and nominal savings come together. If in an economy a part of goods and services produced are held or are not sold, a part of nominal income would also not be spent and shall be saved, and vice versa. Keynes accepts what is not consumed, is saved, but he does not clarify the relationship between liquidity preference and savings.

Tobin (1981) corrects some aspects of Keynes theory. He refers to two types of asset: i.e. money and any other thing. Keynes considered all non-money assets and bonds as perfect substitutes in any particular rate of interest. This approach is in fact another face of the Keynes's neglect regarding the relationship between liquidity preference and monetary savings. This means the people hold the money they do not spend both in the shape of liquidity preference and in the form of financial assets.

2-3- Demand for money and credit

The second market is the credit-money market. Current period demand for funds that are demanded either for transactions or investment during the current period is considered to be credit. All loans and other funds that are used for financing of expenditure are called credit. The financing is made through the financial and monetary markets, is called credit money. Such money takes three different forms:

- Indirect credit: Economic units obtain their monetary needs to finance their expenditure, through financial intermediaries (bank or non-bank) as monetary loans (La).
- Direct credit: Economic units obtain their monetary needs to finance their expenditure, through issuing securities including bonds and securities to obtain monetary capital (Ls).
- Self-loan: Households use their held liquidity in the shape of money from previous periods to pay for their current expenses. This is like a loan received from themselves.

The total of such activities shape credit-money market. Following Ohlin (1937) and contrary to Keynes (1937) who criticized Ohlin for "considering all sources as credit while other economists only regard bank loans as credit", the paper also refers to all sources as credit. However, in this analysis, the changes in liquidity balance are also considered. The formula is:

$$L = La + Ls + dm \quad (2)$$

In this formula, La is total demand for debt by all economic units and supplied by monetary intermediaries (including from banks, pension funds, insurance agents and etc.). Ls indicate financial capital from other sources including shares and bonds issued either by the financial intermediaries or by the Government. Finally dm indicates the liquidity balance entering from other periods to the current period. Hence the demand for money or money-credit market realizes through credit instruments and in the shape of loan or financial capital.

2-4- Nature of Money and Money Market

Asset-money and credit-money markets though separate and of two distinct natures, are dependent on each other. What is the relationship between the two activities and monetary markets? This question shall be discussed in the following section. Clearly the markets for asset and credit are some types of monetary markets. If this is possible, what would be the nature of demand for money and its supply? To answer these questions, it is essential to consider the basic nature of money. What is money? Is there a market called money market? To clarify this, it is essential to answer the questions raised above.

Nature of money

Money may be defined from various angels. Money existed ever since transaction existed. According to Thornton (2000): "Money depends on transaction." Such transaction may be

anything like payment of fine (Goodhart (1989 and 1998)), or any type of transaction. Although money may be used, for exchanging, by the most inferior types of goods (like salt) to the best superior good (gold coins), and has always existed in the economy. Classical economists define money as neutral and a pure means of transaction. On the contrary, some other economists consider money as an effective item with the property that the slightest change in money would affect all economic variables.
Then what is the real nature of money? Is money a factor of production and / or as explained by post Keynesians, a balancing item in the economy (Arestis (1992 and 1993) and Kaldor (1982)) it is nothing but the residual item in the economy? Menger (1871) considered money to be a means of payment and Mises (1953) emphasized that money is mainly a medium of exchange. Heterodox theorists, including Augusto Graziani (1996) believe that money is the store of wealth ,or Graziani argues (2003)" since money cannot be a commodity, it can only be a token money;". Others, including Neale (1976) and Ingham (2000) assign some social value to money. Ingham argued (2006): "The ontological specificity of money derives from what Keynes referred to as the 'description' of money by a money of account (Keynes 1930: 4) ". Is there a remedy to solve these different notions?

I argue money "carries value" and, therefore, it has a dual role. On the one hand money is a universal (or formal) monetary commodity, has purchasing power, and thus it is the means of transaction. It is transacted with goods, services and factors of production in real markets .and on the other hand *it also conveys monetary variables, such as credit, capital and financial asset*. Of course, this conversion is a real one; hence money can never be freed from playing the role of monetary variables. Money as a carrier of monetary variables is converted to the following shapes:

- Monetary Base that is created by the monetary authority and includes coins and notes. This is a liability of the Central Bank to the holder of monetary base.
- Money in the shape of nominal income including the receipts in exchange of supply of production factor or transfer of assets or selling products. This variable shall be later on converted to savings or expenditure.
- Money in the shape of credit and loan.
- Money in the shape of savings that is convertible to assets.
- Money in the shape of capital that shall enter the transactions of capital goods and factors.

Given that money in any of the above shapes is eventually converted to one of the three shapes of money as credit money (credit, loan and capital), money asset (savings, cash, deposits, …) and transaction money (expenditure and income). This is why the paper concentrates on these three types only. The first two types of money flow in two different markets. This raises the question of whether the money can have several different markets.

Nature of Money Market

As discussed above, money does not have a single nature. Neale (1976) believed that "It is better to think about monies, instead of one money, because social relations in the society are quite different". If money carries the nature of one of the shapes of money, can one say there is a specific market for money?

Lavoie (1987) believed that "Many do not believe the supply for and the demand of money." According to Nel (1996), "Explanation of the role of money by demand for and supply of money is insufficient, unfamiliar and at times confusing." If money appears as one shape of monetary variable at any time and carries their quality, why should there be any need to have an independent money market? Bernanke and Blinder (1988) have done an interesting research to define two money markets, i.e. deposit market and credit market. Friedman (1981) claimed that "The analysis of macro economics should be in such a way as to include both money and credit markets." The two approaches look similar, however, in Bernanke and Blinder case, deposit is considered as a type of asset while Friedman's view is not clear from his statement. Money compared to credit does not make sense as credit, itself, may be a type of money. The conclusion is that:

- Money exists and has two roles.
- Money is a monetary commodity for transaction. It is a social universal commodity facilitated transactions. According to Clower"goods buy money and money buy goods". In this role there isn't any separate market for money.
- Money conveys monetary variables in monetary markets. This shape of money appears only in the market that exists for the relevant monetary variables. Therefore, there isn't any market for money itself, but there are two kinds of monetary markets, asset- money and credit-money.

The conclusion is that money flows in monetary markets in the shape of various variables and, in the real markets, transaction money.

3- Monetary Interaction

Monetary and financial markets are integrated by interaction with each other. Money, conveys monetary variables, is means of integrating them, by infraction, in monetary market. Thus we confronted to Monetary Integration Theory. The interaction between various monetary markets can be classified in three different ways as below:

The first is an accounting and balance sheet approach. This approach is seen in Coppland (1949) and a SNA model of the United Nations. The second is the macroeconomics approach that shows the economic interactions between various markets. In the same way that there is a relationship between income and expenditure, and/or interaction between firms and households, there is also an interaction between asset money and credit money.

The third is a new economic model. In the same fashion that the Classics use a savings – investment model to decide about the rate of interest, or the Keynesians and Hicksians use IS-LM models, here one can use the economic model of A-L. Clearly it is wrong to ignore these ways except for the accounting approach. These approaches show, by monetary interactions, how monetary integration takes place.

3-1- Monetary Flow of Funds or the Balance Sheet of the National Economy

Copland (1949) believed that: "There is a monetary flow outside economic transactions and being so, it may be considered as a uniform monetary flow in a financial report." In recent years, financial accounts within the framework of SNA are published by several international organizations. These reports are shaped only on accounting basis. It is possible to present SNA reports and flow of funds in a conceptual framework.

Although banking system and financial system work along each other, the financial system also circulates the outcome of its work within the monetary system. This is to say that their receipts and payments are carried on through the monetary system. The funds are converted to bank deposits either directly or through financial papers. Hence if one looks at the receipts and payments from the point of view of monetary markets, the liability section in the monetary system shows the result of interaction between the demand for and the supply of total of deposits in the shape of deposits and cash and those funds received from financial intermediaries. It also includes the balance of supply of bonds and debt papers. The liability section shows the sources of national economy. The other section is asset section of the monetary system that shows the total of credits. Asset side determines uses of funds in the national Economy. This means, it is better to show the Monetary Balance of the National Economy (MBONE) by combining balance sheet of all agents active in the monetary markets. The liability side of MBONE indicates the balance of activity of the asset market; whereas the asset side of MBONE demonstrates the balance of credit market. As is observed, both sides of the MBONE show independent balances.

As is seen, any national economy acts as an economic unit and shall have its own balance sheet. Such balance sheet shows the flow of funds between two parts of society by intermediaries. Each side of this balance sheet reflects the working of one particularly money market. A simplified shape of this balance sheet is shown in Table (1) below:

Table (1): Monetary Balance of National Economy

Liabilities (Sources)	Assets (Uses)
Savings (Debt of intermediaries = Asset of Society)	Credits (Assets of intermediaries = liabilities of Society)
-Deposits, coins, notes	-Bank debts and Past Balance due
Balance received from supply of financial assets	Debt and liabilities of firms against securities + Reserves

In more detailed shape, one may show all asset markets (and savings) in the left hand side of the table and all credit (and debt) markets are in the right hand side. The above balance sheet include the balance sheet of the households, firms, Government, banks, pension funds and insurance companies consolidated together.

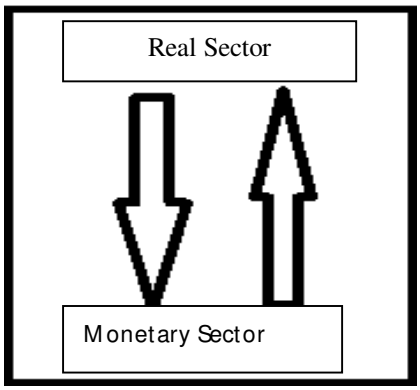
3-2) Monetary Processes and the interaction between the monetary and the real sectors

Considering the above details, any economy has two sides: the real sector and the monetary sector. These two sectors exist in each economy and interact with each other. Therefore the monetary sector isn't out of economy, but is within it. The money, that is not spent or is saved, through intermediation of asset market leave the real side of the economy and enter the monetary sector of the economy. On the other hand, the money that has entered the monetary sector of the economy, through the intermediation of credit leaves the monetary side and enters the real side of the economy. Turgot (1776) explains that money saved at one point of time would not vanish entirely but returns to economic cycle at some later point of time. Moreover, the amount of hoarding is compensated by the increasing value to savings. Money has a high tendency to return to economic cycles.

The conclusion is that:

- A two-sided interaction exists between real and monetary activities: one side of the interaction is in the shape of monetary asset and the other side is in the shape of credit money. During the first interaction money leaves the real sector of the economy and enters into the monetary side. In the second interaction, money leaves the money market and enters the real sector. In figure 1 below, the two interactions are seen.

Figure (1): Interaction between Monetary and Real sectors



- Monetary process is the integration of money within the credit market and the asset market, and circulation between the real sector and monetary section of the economy. Monetary process complements the real sector process. Monetary fund's enter from monetary markets into this process and leave it through credit markets. Both the asset and credit markets are related to each other through money-makers. As a result a kind of monetary process beyond the activities of the real sector of the economy would be created and this process has two internal and external processes.
- Within the internal process, money is exchanged by money, in other words, during this process, money creates money. This means that the process of deposits-reserves-loans, or loans-deposits-reserves, some amounts of money, called endogenous money, is created.
- The external process of money links the real and monetary sectors together. Savings leave the expenditure side of the real sector while credit enters from the income side of the real sector. Asset market and credit market the gates for leave and entry of money in the real sector and entry and leave in the financial sector of the economy. It seems as if money and credit join the two ends of the real and monetary sector of the economy together.

3-3) Circular Flows of Funds:

In order to understand circular flow of funds, it is essential to know the interaction between the society and monetary intermediaries.
Basic model is based on several assumptions that give the:

1- The Society have two agent:
   1-1 – Households that saved unexpended income and supply to intermediaries.
   1-2 – Entrepreneurs that demand credit of intermediaries.

2- monetary intermediaries are institutions or units that redistribute the monetary funds by taking them, from those who cannot create the best outcome, and deliver them, to those who would be able to create the best value.

3- Savings is the supply of unspent income. Credit is monetary funds that society need.

Consider an economy with its citizens spending on all types of consumer and investment goods and services and consisting of four groups:

- Group 1: Those whose expenditures are equal to their incomes. The members of this group neither save nor receive credit.
- Group 2: Those whose incomes are more than their expenditures and hence have some savings.
- Group 3: Those whose incomes are less than their expenditures and hence borrow to pay for their expenditure.
- Group 4: Those who save but invest their savings and are neither the borrowers nor the lenders.

The entire society consisting of the above four groups shall flow some savings leaving the households of society and entering the entrepreneurs as credit. The graph below show the interaction between this society and financial ntermediaries

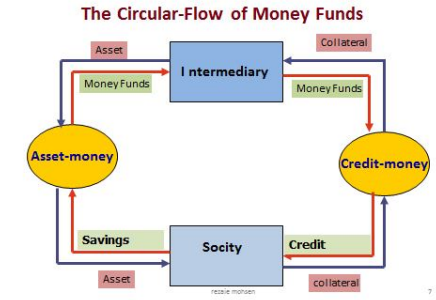


Figure 2

The figures show the circular flow of funds consisting of asset and credit. The intermediaries take the savings of the society and give them the assets. On the other hand, they provide credits to the more productive agents of the society and receive collaterals from them. The society supplies its savings and converts them to financial wealth. On the other hand, those who have demand for credit, receive what they need by providing the necessary collaterals or accepting the needed liabilities. As result of such activity a circular flow shall form in the economy.

4- **Monetary Funds Market Model A- L (with passive central bank)**

The basic assumptions In this model are like the circular flow of funds, means that there are society, both households and entrepreneurs, and intermediaries, by optimizing their benefits. In addition, assuming stable prices.

Creation of money and value

Monetary intermediaries create money by saving and credit. They received saving of household and making monetary funds, or credit, for entrepreneurs. Parts of the society (the households) supply the savings funds to intermediaries and demand their assets. This way, they make resources for credit. Another part of the society (the entrepreneurs) demands credit funds of the intermediaries and supply assets to them. Monetary intermediaries create money by two effects:

1) Profit effect, credit redeem to them with their profits.

2) Velocity effect means that the velocity of resources in transactions is higher than the saving funds.

Both effects come from making value in the real sector. Dividing labor force and productivity in the economic society, and exchanges their products with money, bring about:

1-this process, production and exchange, in the real sector make the excess value,(Rezaee,1994)

2- Value transit, within the process, to circulating money.

3-money carries value to the monetary markets.

Thus money, by adding value, through savings, enter to monetary process and make new money(or nominal value) in the economy. Accordingly, money is made of excess value and monetary process.

The Model A-L

The monetary funds model consists of two curves one of which shows the asset market and the other credit market. The intersection of the two curves shows the rates of interest as well as the amount of asset and credit in optimum condition. At any point outside this intersection, there would be disequilibrium with different values for assets and credits. Such results are obtainable by simultaneous optimization of the behavior of households, monetary intermediaries and entrepreneurs in the asset, credit and capital goods markets. Assuming that the households and entrepreneurs try to maximize their benefits in both the credit and asset markets, the following relationships should hold:

1- Monetary equilibrium is defined as:

$\partial L/\partial S$. i – r = 0 ⇨ $\partial L/\partial S$. i = r. =======➔ i = r : The first condition

$\partial I/\partial L$.r – Rx = 0 ⇨ $\partial I/\partial S$. r = Rx. =====➔ i = Rx: The Second condition

{i = r = Rx : The general condition

I,r,Rx,L,S are credit interest, asset interest, real interest, credit, savings respectively.

The first condition holds in both monetary markets. The second holds in the credit and capital goods markets. The general condition holds in monetary markets and capital goods.

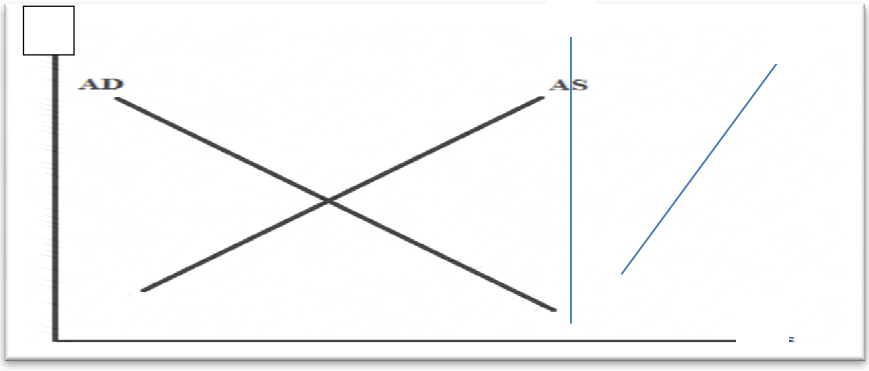
2-The supply and demand curves of monetary markets can then be extracted from the above optimal formulations.

These advantages are described in the following sections.

4-1-Monetary funds and the asset-money market,

A curve Holding money in the shape of monetary and financial assets (deposits, cash and securities) that would be registered in the liability side of the economy, have happened In the money asset. In the process of demand and supply of monetary funds, the unspent income is converted to asset and taken out of the current economic activities while entering monetary activities. This is a movement of money to a section outside the sphere of economic activity. This is why they are called supply of monetary funds from real sector to the monetary sector. This is shown by A. A curve is the location of all monetary funds which are not spent at equilibrium of the real sector and are converted to wealth in the market for monetary assets. This curve is shown in figure (4). Considering the fact that an increase in the rate of interest, all other things being equal, raises the savings, this curve has an upward slope. The curve A resulting from money-asset market. Assume that

Figure (4): Demand and Supply of Monetary Funds



AS curve is the demand for asset or the supply of unspent income (savings) by households. The curve AD is the supply of assets and demand for unspent income by intermediaries. Thus money funds supplied from the real sector to the financial sector. The curve A shows the amount of unspent income that is supplied to the monetary process by the market for asset money. Each point of this curve shows the amount supplied to the monetary process from any one point of equilibrium in the market for financial and monetary assets.

Specifications of A curve:

A curve is the locus of all equilibrium points with rate of return of (r) and amount of asset money (S). Hence each point of this curve shows a pair of (S) and (r). Here (S) is the supply of money transacted and (r) is the average return to the assets. Assuming that the income level is unchanged, any increase in the rate of return to the assets shall lead to an increase in the volume of money transacted. Hence S is a function of income (y), propensity to spend (a), rate of return to assets (r) and uncertainty (g).

$S = S(r, a, y, g)$ (3)

Return to Assets and Costs of Assets:

Deposits, bonds and equities are imperfect substitute of each other in the basket of money assets. This is fully discussed in the monetary literature and particularly by Friedman (1982), Karl Bruner (1990) and Tobin (1982).

Assuming that all other things are equal, any change in the rates of return shall have both the income effect and the substitution effect on the savings. Any change in the relative rates of return to assets shall affect the allocation of savings relative to the assets. One should note that the change in total level of savings shall depend on the change in the average rates of return to savings.

The important point is that here the average rate of return to assets is considered to be a function of the rate of return to deposits (id), the rate of return to bonds (ib) and the rate of return to equity (ie).

$r = r(id, ib, ie)$ (4)

In order to calculate the changes in the above variables and their elasticity, it is enough to use the method used by Bruner and Meltzer.

At equilibrium, the marginal rate of return to assets should be equal to the rate of interest, return to bonds and return to equities. This rate is a cost that the financial intermediaries should bear.

Uncertainties:

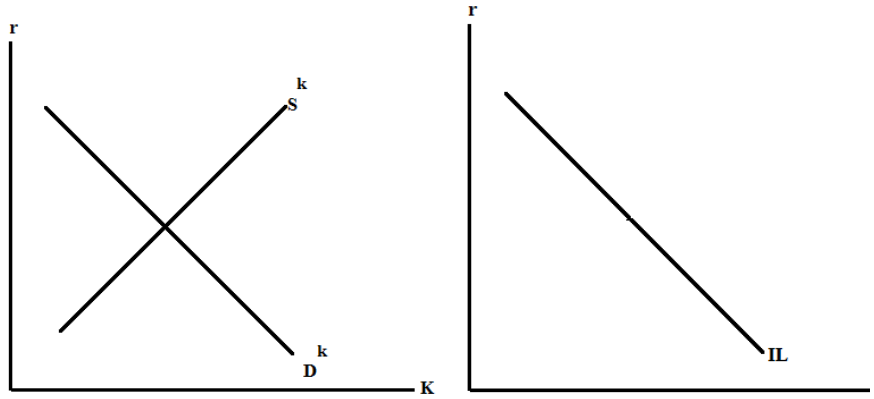
There are two types of uncertainties: one is the uncertainty regarding the general economic conditions in the future and doubt about the degree of economic buoyancy. The second is the uncertainty related to the financial and monetary sectors of the economy. The first uncertainty is called income effect that affects the amount of savings. The second uncertainty is called the substitution effect that shows the rate of substitution between monetary assets (quasi money) with each other and with money (notes and coins). Given any level of general uncertainty of the economy, a specific allocation of wealth between different assets and money shall be determined. When the first type of uncertainty increases, the tendency for liquidity preference rises and with any fall in that uncertainty, such preference declines. Any rise in the second type of uncertainty, the rate of substitution between assets and the market in which the uncertainty has increased, shall increase.

4-2 Monetary Funds and the (L) curve (Credit Market):

Credit money is an activity and market distinct from asset money or savings.

In other words, the demand for and supply of credit, or the demand for and the supply of financial liabilities, take the monetary funds out of monetary process and bring them into the process of economic activity. The process is shown in figure (5) below:

Figure (5): Monetary Funds and the IL Curve or Credit Market



The curve S^K shows the supply of credit by intermediaries and the curve D^K shows its demand by entrepreneurs. This credit market is like the loanable funds market.

The L curve determines the process of leave of monetary funds from monetary process and their entry into the real sector. This is the locus of all equilibriums in the credit market. It is assumed that all credits provided to the economic activity are fully absorbed.

Specifications of L Curve:

L Curve is the locus of all equilibriums of rate of interest (i) and supply of money-credit, all other things being equal, **in** the credit market. Any point in this curve shows a pair of equilibriums of funds received (L) and the cost of funds (i). Here L is the volume of funds received and r is the average cost of such funds. Assuming the constancy of real rate of return (Rx), any decline in the costs of funds shall lead to increase in the volume of credit. Any change in real rate of return (Rx) and money supplied by the Central Bank shall shift the (L) curve. Hence credit is a function of costs of funds (i), real rate of return (Rx) and money supplied by the Central Bank (H). There are also two other variables:

(b) = propensity to spend, and

(f) = financial frictions.

Hence:

$L = L(i, H, Rx, b, f)$ (5)

Credit is a negative function of nominal rate of interest (i) and a positive function of real rate of interest and money supplied (H) by the Central Bank. The effect of propensity to spend (b) and real rate of return (Rx) on credit is positive and the effect of financial friction (f) on this curve is negative.

Costs of and Returns to Credit:

Given that the factors affecting credit are imperfect substitutes of each other, any change in them shall change the demand for credit and its distribution. As such changes in the factors may also affect the average costs of credit they may affect the total amount of credit. This means an average cost of credit is a function of other costs as well. Hence:

$i = i(ri, re, rb)$ (6)

Where:

ri = rate of interest of loans,

re = rate of return on securities and

rb = rate of interest on bonds.

For the calculations of the rates of substitution and changes in the above variables the approach of Bruner and Meltzer may be used.

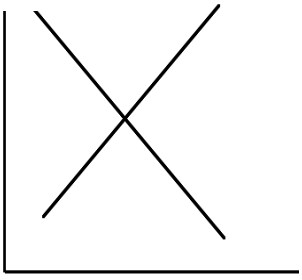
Financial and Monetary Frictions:

In Financial wealth, financial frictions are caused due to asymmetric information, moral hazards, financial corruptions as well as other variables that divert the investment or may even affect the volume of credit.

4-3 – General Model of Monetary Funds With Passive Central Bank

As observed, both monetary activities are parts of a monetary process. Given that the financial intermediaries, they are present in both markets. The combination of the two activities shall form a general model of monetary funds. The supply of monetary funds (A Curve) comes from the credit market and the demand for monetary funds (L Curve) comes from the credit market. They intersect in a virtual space as shown in the figure (6).

Figure (6): General Model of Monetary Funds



Here the figure (4) shows the asset market. Figure (5) represents the credit market. Figure (6) that is shape beyond the current economic markets shows the interaction of monetary funds and explains the monetary process as the supply of monetary funds from the real sector to the monetary sector and the demand for monetary funds from the monetary sector to the real sector.

A curve shows the supply of monetary funds (asset money) and L shows the demand for such funds (credit money).

4-4- General Monetary Funds Model With Active Central Bank

Central bank can affects both asset money, or A curve, and credit money, or L curve. Central bank uses open market operation to affect the asset market. Central bank issues Base money to change the condition of credit market. In the first case A curve shifts to the left and in second L curve shifts to the right. Central bank regulates both resources to the financial intermediaries and the households. Central bank affects basic monetary materials to monetary intermediaries and households. Thus central bank participates in creation of money by the society. In the other hand, it regulates volume of money and rate of interest using monetary instruments.

5- Monetary Equilibrium

Monetary equilibrium holds when both monetary markets are in equilibrium. This is where monetary reserves are equal to monetary intermediaries' natural reserves. Any change in monetary reserves causes disequilibrium at least in one of the two markets. In such a case the disequilibrium in monetary sector is transferred to the real sector as well.

5-1- Monetary Equilibrium (No Speculation and Frictions):

In the pure economy, it is assumed there is no speculation and friction. In this position the asset money increases with increasing income and decreasing the propensity to expenditure, thus the A curve shifts to right. It moves along L curve and decreases interest rates of both asset money (r) and credit (i). On the other hand, with increasing in real return and base money (H), the credit money increases. It moves along A curve and increases interest rate of both savings (r) and credits (i). By optimizing the functions of savings and credits, the general equilibrium condition and first and second equilibrium conditions are achieved as:

A curve: S = S (r, y, p, g, a,) and L curve: L = L (i, Rx, H, f, b)

$\partial L/\partial S.i - r = 0 \Rightarrow \partial L/\partial S.\ i = r. \Longrightarrow i = r$: The first condition describe equilibrium in asset market.

$\partial I/\partial L.r - Rx = 0 \Rightarrow \partial I/\partial S.\ r = Rx. \Longrightarrow i = Rx$: The Second condition describes equilibrium in credit market.

i = r = Rx : The general condition describe monetary equilibrium in asset market and credit market and capital goods.

5-2- Monetary Equilibrium with Speculation and Frictions

In the real world there are frictions and speculations in the monetary markets. What causes disequilibrium in the monetary markets is:

- Unusual changes in the whole reservers that destroyed the monetary internal process and money creation.

Every factor makes excess or unemployed liquidity in the hands of people or in the reserves of banks and firms. Excess liquidity shows the amount of holding funds above natural level.①.

- Diversion of original path, like speculating, government interference, or monopolistic behavior in monetary markets. Because monetary funds, through the effects of them, are diverted to less productive activities.
  For example one form of distortion in a pessimistic situation explains in the following sentences.

1) By decrease competitiveness against foreign countries, entrepreneurs shift L curve to the left along the A curve, leading to a decrease in the interest rate;

2) An effective speculation attempts to keep the interest rate (i') above the equilibrium rate of credit-money market (i) . Thus both monetary market may are in the equilibrium but the general condition isn't held. By the equations: $r = i' > i = Rx$

An effective policy attempts to keep the equilibrium within the pessimistic households A curve, i.e: $i = r = Rx$

5-3) Monetary Equilibrium with unstable prices

Saving function, in a instability of prices world, is negatively related to expected inflation. Curve A, by Increasing expected inflation, shift to left and up. Credit function is positively related to differences current and expected inflation. Curve L, by increasing expected inflation, shift to the right and up. The A-L model show, if all other things are equal, any change in the rates of inflation shall have twofold effect on the interest rate.

6- Theory of Monetary Transactions

The credit funds that are made during the flow of funds (m) enter the market for goods and services. Hence a part of expenditure (D) is financed by this money and the rest is financed by the current income(Y) .

①. By definition, natural level of holding funds is those amounts of reserves that the financial units hold them for precautionary purposes. The proportion of such reserves to income is determined by the financial institutions on the basis of their knowledge regarding the business and their understanding about the possible events. Such reserves are not the result of excess supply of, or shortage of demand for reserves. Natural reserves are kept for circumstances when uncertainties cause the suppliers or the demanders, to keep away from the market.

In addition of credit (L), entrepreneurs and households change volume of their hoarding and other financial wealth, to supply current expending. The credit funds (L) that are resulted in the flow of funds (m), enter the market for goods and services. Therefore,

$m = (1+\Omega). L$ (7) Ω is coefficient shows propensity to converting wealth (W) to funds or: $(dW / W) = \Omega L$

On other hand a part of expenditure (D) is financed by (m) and the rest is financed by the current income. As a result:

$D = m + a.\ Y$ (8) In this formula (a) is the propensity to spend. At equilibrium point, incomes (Y) equal expenditures (D) and then:

$Y = m + a.\ Y$ (9) Meaning that:

$m = (1-a)\ Y$ (10)If ones in any time confront to equations (7) and (10) then

$m = (1+\Omega).\ L = (1-a)\ Y \Rightarrow Y = (1+\Omega) / (1-a).\ L$ (11)

However, we have:

1 - If the income is spent from these credit money funds prior to realization of income, the equation (12)

Is defined as the velocity of circulation of money:

$(1+\Omega) / (1-a) = V$ (12)

2-Considering the definition: $V.L = P.\ Q,$ (13) clearly the quantity theory for money is obtained. Q and P are product and general level prices respectively. If $\Omega = 0$ then we have

$m = L$ and $m\ .V = P.Q$, $V = 1/ (1 – a)$

3- The phrase (12) shows, if the propensity to expenditure (a) and propensity to converting to wealth (Ω) increases then the velocity of circulation of money increases and vice versa. Means that $V = V (a, \Omega)$.

In a sense, the equation (13) may be defined as a Wicksillian formula that indicates the credit equation for money in a pure credit economics.

7- **Conclusion**:

The paper presents the general theory of money, Monetary Funds Market (MFM) theory. There is not any market for money. There are two money markets for asset money and credit money and money is created by interaction between them by intermediaries and central bank. Monetary equilibrium reached if and only if the return of savings and interest rate of credits be equal to real return of capital goods. A-L model show these equilibrium conditions, and could analysis the disequilibrium situations.

Central bank can affects both asset money, or A curve, and credit money, or L curve. It issues both, bonds in the asset market, and Base money in credit market. It regulates not absolute authority but comparatively, the monetary funds and interest rates.
Monetary theories, already were presented, are particular aspects of general monetary theory. They only focus to one side of MFM theory. Wicksell and his follower emphasizes on credit side of money, loan able funds market, Keynes and monetarists like Friedman emphasizes on asset side of money. This paper supports the criticism of Bruner and Meltzer (1990) regarding the tradition model of IS – LM. Simon London (2003) reports Friedman (in the end of his life) has stated that "the use of quantity of money as target has not been a success" and that "I'm not sure I would as of today push it as hard as I once did."

Monetary theories may be compared with MFM theory. The readers may find other differences. By all means this theory has a good reason for its justification.

References

Arestis, P., (1992). The post-Keynesian approach to Economics: An Alternative Analysis of Economic theory and Policy, Aldershot: *Edward Elgar publishing*.

Bernanke, Ben and Blinder, Alan S., (1988). Credit, Money, and Aggregate Demand, *American Economic Review*, 78(2) May, 435-439.

Brunner, K. and Allan H. Meltzer, (1990*).* Money Supply, Carnegie-MelIon University. *Pittsburgh*. Pennsylvania 15213.

Clower, R. W.,(1984). Money and Markets: Essays by R. W. Clower, Cambridge University Press, *Cambridge*- New York-Melbourne.

Copeland, Morris A., (1952). A Study of Money flows in the United States. New York: *National Bureau of Economic Research*.

Daniel Bell and Irving Kristol, (1982). The Crisis in Economic Theory; *Cambridge University Press*.

Friedman, Benjamin, (1981). The Relative Stability of money and Credit Velocities in the United States, *Working Paper, Harvard University,* November.

Friedman, Ben, (1959). Demand for money, *National Bureau of Economic Research*, Inc.261 Madison Avenue, New York 16, N.Y.

Goodhart, Charles A. E., (1998). Two Concepts of Money, *European Journal of Political Economy*, vol. 14, 407-432.

Graziani, A., (1996a). Money as Purchasing Power. *New York: St. Martin's*, pp. 139–54.

Kaldor N., (1975). What is wrong with economic theory, *Quarterly journal of Economics*, 35, 347-57.

Keynes, J. M., (1973). The general theory and After, Defense and Development, London: Macmillan and *Cambridge university press*.

Von Mises, L., (1953). The Theory of Money and Credit, Translated from the German by H. E. Batson, *New Haven: Ale University Press.*

Menger K., (1871). Pathbreaking Grundsätze der Volkswirtschaftslehre, Principles of Economics, *Institute for Humane Studies press*.

Neale, Walter C., (1976). Monies in Societies, the University of Tennessee, San Francisco, CA: Chandler & Sharpe.

Nell, E. J., (1996). Transformational Growth and the Long-Period Method, Review of Political Economy, Vol. 8, No. 4 (October 1996): 379–401.

Ohlin, Bertil, (1937). Some Notes on the Stockholm Theory of savings and Investment, *the Economic journal*, 47(185), 53-69.

Patinkin D., (1965). Money, interest and prices, 2nd edition, *Harper & Row*, New York.

Rezaie, Mohsen. (2002). Money, Credit and General Equilibrium (in Farsi).Ph D. *Thesis. Tehran University. L.R.*

Robinson, J., (1979a). Collected Economic Papers, vol. V, Oxford: *Basil Blackwell press*.

Rogers, C., (1987). Money, Capital and Interest, South *African journal of Economical*. No,2 8-16.

Thornton, D.L., (2000). Money in Theory of Exchange, *Federal Reserve Bank press*.

Tobin, James A., (1982). Money and Finance in the Macroeconomic Process", *Journal of Money, Credit and Banking. Vol 40, 25-40.*

Wicksell, J. G. K., (1936). Interest and prices, Translated by R. F. Kahn, London: *Macmillan press*.

Woodford,M., (1999). Revolution and Evolution in Twentieth-Century Macroeconomics, *Princeton University Press.*

Woodford, M., (2003). Interest & Prices, Foundations of a Theory of Monetary Policy, *Princeton University Press.*

Wray, L. R., (1982). Monetary Policy: An Institutionalism Approach, *Working Paper* No. 21

Wray, L. R., (1990). Money and Credit Capitalist Economies: the Endogenous Money Approach, *Elgar, Alder shot press.*