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Author:

Claudio Sardoni

THE FUNCTIONS OF MONEY AND THE DEMAND FOR LIQUIDITY

CLAUDIO SARDONI
SAPIENZA UNIVERSITY OF ROME*

ABSTRACT. Many Keynesian economists focus their attention on money as a store of value as a defence from uncertainty. Many others monetary economists, also quite close to the Keynesian approach in several respects, emphasise the importance of money as standard of value and means of payment. By drawing on Hicks's and Kaldor's contributions, this paper suggests an approach in which money is characterized by its two functions of standard of value and means of payment, which are inherently connected to one another. The role of store of value, in economies with well developed financial markets, can be normally played by other assets as liquid and risk-less as money. Therefore, the demand for liquidity as a defence against uncertainty should be kept distinct from the demand for money strictly defined.

Keywords: Money; Liquidity; Uncertainty, Financial Markets.

JEL Classification: E4; E5; G1.

1. INTRODUCTION

Keynes, in *The General Theory*, emphasises the function of money as a store of value. Holding idle money is seen as a defence against uncertainty. This function of money plays a crucial role in the explanation of why market economies do not ensure optimal aggregate outcomes, namely they do not ensure the achievement of full employment.

Many Post Keynesian economists have followed Keynes's view of money. Many others, since the publication of *The General Theory* (Keynes 1973) have criticized Keynes's theory and his emphasis on the demand for money as a store of value. In many cases, the criticism and rejection of Keynes's theory of money are associated with a more general critique of his views of the working of the economy as a whole.¹

In this paper, however, we concentrate on criticisms of Keynes's views on money that were developed by economists who, in several respects, can be regarded as

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¹See, for example, Robertson (1936) and Viner (1936).

close to the Keynesian tradition. More precisely, the paper looks at the contributions of Hicks and Kaldor, who both downplayed the function of money as a store of value to emphasise the importance of the functions of money as a means of payment² and as unit of account (or standard of value),³ which are seen as closely connected to one another.

Following Hicks's and Kaldor's views, we argue that the necessary conditions for any instrument to be defined as money are that it plays the role of standard and means of payment. Such an instrument can also be store of value, but this function by itself is not sufficient to define it as money.

If money is defined as suggested above, it is possible to deal with the problem of uncertainty and the demand for a liquid store of value in more general terms than it is usually done within the Post Keynesian tradition. While in an uncertain context the ability of agents to hold liquid assets, or the possibility to easily convert illiquid assets into liquid ones, are crucial aspects, from this it does not follow that the agents' liquidity preference necessarily translates itself into demand for money strictly defined, i.e. the instrument that plays the roles of means of payment and standard of value.

In an environment characterized by the existence of well developed and sophisticated financial markets there are many other instruments that generally are as liquid and risk-less as money. In such a context, a high liquidity preference amounts to a high demand for money as a store of value only in particular exceptional situations.

The paper is organized as follows. Section 2 briefly considers Keynes's position. Sections 3 and 4 expound some aspects of Hicks's and Kaldor's contributions to monetary theory. Section 5 looks at some more recent developments that relate to Hicks's and Kaldor's positions. Section 6 is concerned with the problem of the demand for liquidity as distinct from the demand for money strictly defined. Section 7 concludes.

2. KEYNES: MONEY AS STORE OF VALUE

In *The General Theory*, Keynes emphasised the role of money as a store of value. Money kept idle (hoarded), for precautionary or speculative motives, is essentially seen as a defence against uncertainty. This view is also expounded most clearly and concisely in Keynes's rejoinder to Viner's review of *The General Theory* (Keynes 1937).

²Money as means of payment is to be distinguished from money as medium of exchange. Means of payment is an instrument that settles transactions definitely, i.e. when the seller is left with no further claim on the buyer. Medium of exchange is any instrument that allows a sale to take place, but it still leaves the seller with a claim for future payments from the buyer (see Goodhart 1989, p. 26).

³Throughout the paper, the terms standard of value and unit of account are used as synonymous, but see Hicks (1989, p. 42) for possible differences between them.

Wealth is one of the economic variables crucially affected by uncertainty, as its accumulation is finalised to obtaining results at a relatively distant time in the future. Uncertainty about the future can induce agents to keep all or a significant part of their wealth in a liquid form, i.e. in money: ‘The possession of actual money lulls our disquietude; and the premium which we require to make us part with money is the measure of the degree of our disquietude.’ (Keynes 1937, p. 216). The rate of interest is the premium to part with money.

Wealth-owners, who decide not to hold their wealth in the form of hoarded money, have two alternatives between which to choose: lend their money at the current rate of money-interest or to purchase some capital-asset. In equilibrium, however, the two alternatives must give the same yield to investors in each of them. The equalisation of yields is brought about by variations of the prices of capital-assets relatively to the prices of money-loans. Thus, the interest rate, determined by the supply of money and the economy’s propensity to hoard, affects the prices of capital-assets which also depend on their expected future yields.

New capital assets can be produced and their production (investment) depends on the relationship between their cost of production and the prices they are expected to realise. Therefore, ‘It is not surprising that the volume of investment, thus determined, should fluctuate widely from time to time. For it depends on two sets of judgments about the future, neither of which rests on an adequate or secure foundation - on the propensity to hoard and on opinions of the future yield of capital-assets.’ (Keynes 1937, p. 218).

Keynes had already expressed, in a more elaborated form, the same concepts in chapter 17 of *The General Theory*. There, he explained why money ‘rules the roost’, that is to say why the liquidity premium of money sets a limit to the levels of output and employment that the economy can realise.

Since the yield of assets is a decreasing function of their quantity, the equilibrium quantity of all assets is determined by the asset yield that is fixed or highly sticky: the production of all the other assets will not be pushed beyond the level at which their yield equals the ‘sticky yield’. Money rules the roost because the interest rate on it is the most reluctant to decline.

What is not obvious, however, is what is intended by money and why it plays such a crucial role. Keynes introduces the notions of own-rate of own interest and own-rate of money-interest of assets, which respectively are

$$\begin{aligned} R_i^o &= q_i - c_i + l_i \\ R_i^m &= a_i + q_i - c_i + l_i \\ (i &= 1, 2, \dots, n) \end{aligned} \tag{1}$$

where q_i is the yield of the i -th asset in terms of itself, c_i is the asset’s carrying cost, l_i is its liquidity premium (the amount of the asset itself that an agent is willing to pay for the potential convenience of the power of disposal of the asset)

and a_i is the asset's appreciation or depreciation in terms of the economy's unit of account.

Money (the m -th asset) is characterized by the following properties:

$$\begin{aligned} q_m &= 0 \\ c_m &= 0 \\ a_m &= 0 \\ l_m &= \bar{l}_m > 0 \end{aligned}$$

Money is a non-producible asset (it has a zero elasticity of production) and the yield in terms of itself is nil. Money has also a nil carrying cost. Its appreciation (depreciation) is nil because is the unit of account. Finally, money has a positive and constant liquidity premium (it has a zero elasticity of substitution). Therefore,

$$R_m^o = R_m^m = \bar{l}_m \quad (2)$$

In equilibrium, it must be $R_m^m = R_i^m$ ($i = 1, 2, \dots, n; i \neq m$), that is to say,

$$\bar{l}_m = R_i^m \quad (i = 1, 2, \dots, n; i \neq m) \quad (3)$$

which means that money 'rules the roost': its constant liquidity premium (\bar{l}_m) determines the equilibrium quantities of all the other assets.

Keynes, in chapter 17, refers to money as 'we know it' (standard of value, means of payment and store of value), but for him the role of money could be played by any asset which has the properties indicated above.⁴ The functions of standard and means of payment are not sufficient to give money as we know its crucial role.

This approach to money and his emphasis on liquidity is coherent with Keynes's definition of money in *The General Theory*. Keynes defines what money is in a 'vague' way, in the sense that we can define money differently according to the analytical needs, so that 'we can draw the line between "money" and "debts" at whatever point is most convenient for handling a particular problem' (Keynes 1973, p. 167n). Given a set of assets of varying liquidity, the subset of most liquid assets is money. In terms of chapter 17, money is the subset of assets for which it is $q = 0$, $c = 0$ and $l = \bar{l} > 0$.

Keynes's analysis of money as outlined above is that to which most Keynesians and Post Keynesians usually refer. But Keynes's earlier view of money as expressed in *A Treatise on Money* (Keynes 1971), was rather different. His definition of money in the *Treatise* is related to the analysis of transactions carried out through contracts and its functions as standard of value and means of payment take the centre-stage.

Money of account, namely that in which debts and prices and general purchasing power are expressed, is the primary concept of a theory of money. A money of account comes into existence along with debts,

⁴Other assets, like land, may have played the same role as money in some historic situations (Keynes 1973, p. 241).

which are contracts for deferred payment, and price lists, which are offers of contracts for sale and purchase. . . . Money itself, namely that by delivery of which debt contracts and price contracts are discharged, and in the shape of which a store of general purchasing power is held, derives its character from its relationship to the money of account, since the debts and prices must first have been expressed in terms of the latter . . . Money proper in the full sense of the term can only exist in relation to a money of account. (Keynes 1971, p. 3)⁵

It is this view of money that inspires Hicks's theory of money, which is briefly considered in the next section.

3. HICKS'S CONTRIBUTIONS TO MONETARY THEORY

Hicks's contributions to monetary theory are many and dating back to the 1930s, but perhaps his view of money is best expressed in some of his more recent works in the 1960s (Hicks 1967, pp. 1-60) and in the 1980s (Hicks 1989, pp. 41-90). Here, we shall refer to these works.

For Hicks, transactions carried out through contracts represent the most general form of exchange, while spot transactions are a particular case. Any transaction can be divided into three parts. First, there is the making of a contract between two parties. A contract is a promise to deliver something at a certain date and a corresponding promise to pay for what is delivered. The two promises (or deliveries) are the second and third parts of the transaction.⁶

Money appears in the transaction in two ways: in the formation of the contract, when the value of the delivery has to be established; in the discharge of the buyer's debt. These two roles of money correspond to its functions as standard of value and as means of payment.

The two functions of money are not independent of one another. A debt in money cannot be discharged unless money also plays the role of standard of value (Hicks 1989, p. 43). Money as a standard makes it possible to form price-lists, in which the values of commodities are reduced to a common measure. Any instrument that is the standard of value and means of payment can also have the function of store of value. Any instrument that is a store of value but does not have the other two functions is not money (Hicks 1967, p. 17).

⁵It is the state that enforces the delivery of contracts and establishes which instrument must be used to discharge them: 'Now by the mention of contracts and offers, we have introduced law or custom, by which they are enforceable; that is to say, we have introduced the State or the community. Furthermore it is a peculiar characteristic of money contracts that it is the State or community not only which enforces delivery, but also which decides what it is that must be delivered as a lawful or customary discharge of a contract which has been concluded in terms of the money of account.' (Keynes 1971, p. 4).

⁶In spot transactions all happens simultaneously.

Although money can occasionally be a store of value, this is not a distinct property of its. Any durable and resalable good can be store of value and it cannot be argued, as Keynes did, that money is the best store of value because it is perfectly liquid. In fact, liquidity can be defined only in terms of exchangeability for money and, therefore, ‘to define money as an asset with perfect liquidity is to argue in a circle. It is the other functions of money which are intrinsic; the liquidity property follows from them.’ (Hicks 1989, p. 42).

Money as a store of value can be dealt with by distinguishing non-voluntary and voluntary demand for money. Non-voluntary demand is the demand for money as a means of payment to carry out transactions (to settle contracts), even though this sort of demand does not conform to the usual notion of demand. In the economy, there is always a certain amount of money in circulation to effect transactions, but it cannot be said that this implies a demand for money (demand for transactions purposes) in the same sense as the voluntary demand for commodities. The amount of money in circulation ‘would depend upon the pattern of transactions conducted, not upon any individual decisions, not even upon any aggregate of individual decisions’ (Hicks 1967, pp. 14-15).

The total stock of money in the economy, however, is explained only by transactions. Part of the existing stock of money must be attributed to voluntary holding (Hicks 1967, p. 15) This is the demand for money as a store of value, which Hicks relates to Keynes’s precautionary and speculative motives. Hicks’s treatment of money as store of value relates to the theory of portfolio choice developed by Tobin (1958).⁷ Investors choose the portfolio that maximises its yield. If they are risk-averse, their portfolio may contain a certain amount of money (Hicks 1967, pp. 17-27).

Hicks, however, does not conclude that in the agents’ portfolio there must always be a certain amount of money.

Keynes, I think, believed that it was always (or merely always) the case—in an economy with developed financial markets—that there would be *some* money being held for a speculative motive (...) [R]isk aversion *may* induce the investor to hold some non-interest bearing money in his portfolio (...) but nothing has been said which would lead us to suppose that he must do so, unless he is feeling in a very poor state. (Hicks 1967, p. 46)

In other words, agents normally protect themselves from risk and uncertainty in ways different from holding idle money strictly defined. As we shall see later on in section 5, most contemporary views of the possible role of money as a store of value are similar to Hicks’s.⁸

⁷But see also Hicks’ 1935 article on the simplification of the theory of money (Hicks 1967, pp. 61-82).

⁸Also Viner (1936, pp. 155-6) had already pointed out that liquidity preference can be satisfied by other assets than money.

4. KALDOR: THE IMPORTANCE OF MONEY AS STANDARD OF VALUE

Kaldor criticises Keynes's approach to money and the rate of interest in *The General Theory*.⁹ The analytical foundations of Kaldor's position can be found in his 1939 article on speculation (Kaldor 1960c) and the appendix to it, which was published only in 1960 (Kaldor 1960b). Here it is not possible to look at Kaldor's analysis of speculation in any detail;¹⁰ it will suffice to recall that Kaldor abandoned the traditional Keynesian hypothesis that the alternative to speculative commitments is the holding of money (the speculative demand for money). In his analysis, when speculators want to become more liquid they shift from the holding of long-term securities to the holding of shorter-term more liquid securities and not to money.¹¹

A change in the expected or current (long-term) rate of interest can induce speculators to sell their long-term investments and to hold more liquid assets, but 'there is no reason to expect, in normal circumstances at any rate, that the substitution will be in favour of cash. "Idle balances"—i.e. that part of short-term holding which the owner does not require for transaction purposes—can be kept in forms such as savings deposits, which offer the same advantages as cash (as far as the preservation of capital value is concerned) and yield a return in addition.' (Kaldor 1960a, p. 39n).¹²

In the appendix to the article on speculation, Kaldor criticises chapter 17 of *The General Theory*. He rejects, in particular, the idea that other assets than the one which is the standard of value can rule the roost. Kaldor focuses on the own-rates of money-interest of the assets. A crucial difference with respect to Keynes is that Kaldor uses the notion of marginal risk premium (r) of assets instead of their liquidity premium (l). Therefore, the i -th asset's own-rate of money-interest is

$$R_i^m = a_i + q_i - c_i - r_i \quad (4)$$

$$i = 1, 2, \dots, n$$

where r_i is the i -th asset's marginal risk premium, which is a deduction from 'the yield of those assets which, on account of the uncertainty of future value (or return)

⁹For Kaldor, Keynes in *The General Theory*, had thrown in his theory of the interest rate as an 'afterthought' because, once it was established that the equality between saving and investment is ensured by variation in the level of income, it was necessary to explain the interest rate in some way not to leave it 'in the air' (Kaldor 1989).

¹⁰See Sardonì (2007) for a detailed exposition of Kaldor's theory of speculation as developed in the 1930s.

¹¹Kaldor's considerations on the speculators' behaviour are made within the context of his analysis of the long-term rate of interest and its relation to the short-term rate. Kaldor's theory of the long-term rate of interest is largely inspired by Hicks, for whom the long-term rate of interest is an average of forward short-term rates of interest (Hicks 1939, pp. 141-52).

¹²Kaldor made this point clearer later on in 1960; see Kaldor (1960a, pp. 4-5n).

in terms of money, or on account of their marketability, carry a risk premium for which this yield must compensate' (Kaldor 1960b, p. 60).

For money (the $m - th$ asset), the advantage to use r instead of l is that in this way it is possible to draw a clear-cut distinction between the liquidity and the 'convenience yield' of money. The convenience yield of money (denoted by q_m) derives from the fact that exchanges are made in money and, hence, it is convenient to hold a certain amount of it (Kaldor 1960b, pp. 61-2).¹³

The money-rate of money-interest rate is

$$R_m^m = q_m \quad (5)$$

because it is $a_m = 0$ (the standard of value cannot appreciate or depreciate in terms of itself), $r_m = 0$ (there is no uncertainty about the future price of money and it is perfectly marketable), $c_m = 0$ (the carrying cost is negligible).

In equilibrium, the assets' own-rates of money-interest must be all equal and, in particular, it must be

$$R_m^m = R_b^m \quad (6)$$

where R_b^m is the interest rate of short-term bills (the $b - th$ asset), which are the nearest substitute for money.

Short-term bills have a small risk premium r_b (fairly insensitive to their quantity) and their carrying cost can be assumed to be nil. Finally, short-term bills have also a negligible or nil expected price change. Therefore, $R_b = q_b - r_b$ and (6) reduces to

$$q_m = q_b - r_b \quad (7)$$

r_b sets the lower limit to the bill-rate of interest. When the marginal convenience yield of money, q_m , falls to zero,¹⁴ the bill-own rate of interest (q_b) reduces to r_b .

We can now turn to the discussion of why money rules the roost. If it is assumed that the expected price of reproducible assets is given by their long-period supply prices (their normal prices), an asset is produced only when its current price is higher than its supply price, i.e., when a is positive. When, for an asset, $a = 0$, its current price is equal to its expected price (its normal price) and, hence, the marginal efficiency of the asset,¹⁵ its own-rate of own-interest and its own-rate of money-interest are all equal.

In this framework, the general level of the own-rates of money-interest is set by the greatest of the own-rates of own-interest among those assets whose own-rate of money-interest (R_i^m) cannot vary with respect to their own-rate of own-interest

¹³Instead, if Keynes's method is followed, the two attributes of money become inseparable, although liquidity is comparative while convenience is not.

¹⁴Because the amount of money in circulation exceeds the level at which its convenience yield reaches zero. In other words, there is an excess supply of money, which is demanded only to make transactions.

¹⁵The marginal efficiency of an asset is defined by Kaldor as the relationship of its future return to its present cost of production, i.e., its long-period supply price (Kaldor 1960b, p. 59).

$(q_i - c_i - r_i)$. The only asset with such a characteristic is money because it is the standard of value ($a_m = 0$): ‘all assets other than money can adjust their own-rates of money-interest to that of money by a variation of their current price in terms of money; while the money-rate of money-interest can only be changed by varying money’s own-rate of own-interest’ (Kaldor 1960b, p. 70).

The current money-rate of money-interest rate can change only if the current money’s own-rate of own-interest changes. This, for Kaldor, could happen if the stock of money in circulation changes and affects q_m . In Kaldor’s analysis it is the central bank that determines q_m by controlling the quantity of money in circulation. Therefore, the central bank controls the short-term interest rate as expressed in (7).

From the analysis above it follows that if there existed an asset other than money whose yield is sticky with respect to its level of production, it could not play the same role as money (the standard of value). The price in terms of money of such an asset, in fact, would vary and, consequently, its own money-interest rate would vary relatively to its own rate of own-interest. In particular, if the price of such asset rises, its money-interest rate falls relatively to its own-rate of interest and this would ‘thereby lower the standard to which the own-rates of interest of other assets must conform’ (Kaldor 1960b, p. 71).¹⁶

Thus, in conclusion, for Kaldor the yield of money (q_m), which is demanded only for transactions, rules the roost because money is the economy’s standard of value, not because of any other special property.

5. SOME MORE RECENT DEVELOPMENTS

Hicks’s and Kaldor’s ideas that the demand for highly liquid assets does not generally imply to demand money strictly defined and that the role of money as standard of value is crucial have been followed, even though not necessarily explicitly, by a number of economists.

Recent analyses of the demand for money as a store of value and, in particular, the speculative demand are close to Hicks’s position. In modern financial markets, the speculative demand for money plays a lesser, if any, role. In contemporary macroeconomics, the speculative demand for money has virtually disappeared.

¹⁶The analysis above is conducted by taking the assets’ long-period supply prices as their expected prices, which amounts to assume that price expectations are inelastic. The picture changes if expectations are assumed to be elastic. In this case, when the current price of an asset varies, its expected price varies as well, so that the asset’s rate of money-interest does not necessarily decrease with respect to its own-rate of own-interest. However, the increase in the asset’s money price would reduce its own-rate of own-interest: if the asset’s yield is fixed in money terms, the increase in its price reduces its yield in terms of itself. The exception is when there is an asset whose yield is fixed in terms of itself. Such a case, however, for Kaldor is very unlikely. Moreover, to assume that an asset’s yield is fixed in terms of itself basically amounts to assuming that such asset is the economy’s standard of value.

This may be partly due to the definitive departure of much contemporary mainstream macroeconomics from its Keynesian origins, but also because the speculative demand for money is commonly seen as an obsolete notion in the context of modern monetary economies.

Innovation has produced complex and sophisticated monetary and financial markets, in which there exist several instruments that are as liquid and risk-less as money. Chang et al. (1983, pp. 421-2), for example, state that ‘if money market instruments are explicitly incorporated in a portfolio model, the demand for money as a buffer against interest risk vanishes.’ Blanchard and Fischer (1989, p. 154) hold that money as a store of value is dominated by many other assets. Handa (2000, p. 121) has expressed the same viewpoint: ‘in economies with a variety of risk-less assets (...) the speculative demand for M_1 (...) would be non-existent or confined to those individuals who do not have access to other risk-less assets at a low enough cost.’ Also Holmström and Tirole (2011), who look at firms’ demand for liquidity, do not reduce it to demand for money. For them, the firms’ demand for liquid assets essentially is the demand for assets which can be easily sold.

Also the importance of money as a standard of value has been emphasised in a recent debate on the possibility to implement effective monetary policies in a highly sophisticated financial environment.¹⁷ The debate relates to a more general concern about the future of money and the possibility that it is displaced by other instruments made available by financial innovation.

Woodford has taken the position that, even if innovations should lead to a situation in which the banks’ demand for reserves (base money) at the central bank can fall to zero, central banks are still able to determine a (short-term) interest rate that affects the whole constellation of interest rates. The basic reason why it is so is that the central banks’ liability is the economy’s unit of account.

Woodford considers an extreme case in which commercial banks do not have to clear through the central bank’s settlement balances (i.e. demand reserves with the central bank), but can adopt different systems of clearing. Financial (and technological) innovation makes available to banks overnight investments that are as risk-less as reserves at the central bank.

This, however, does not mean that the central bank is unable to determine the level of overnight interest rates. The central bank can still influence the economy’s interest rates if it pays an interest on the commercial banks’ reserves with it. The banks’ demand for reserves with the central bank would be nil at any overnight interest rate higher than the settlement cash rate (the rate on reserves) and horizontal at any rate equal to or lower than the settlement cash rate. Therefore, if the central bank changes its rate, the market rate has to change as well,

¹⁷The debate was originated by an article of Friedman (1999) on the effects of financial and technological innovations on monetary policy, followed the next year by a symposium on the future of monetary policy in the same journal, with a contribution by Woodford (2000) and a rejoinder by Friedman (2000).

because otherwise there would be an excess demand (supply) for market liquid assets, eliminated by arbitrage (Woodford 2000).

The central bank is always able to fix the interest rate on its liability because there is no inherent equilibrium value for a fiat unit of account like the ‘dollar’ (the central bank’s liability), unless a particular value is determined through the monetary policy commitments of the central bank itself. The value of a dollar deposit with the central bank cannot be anything other than a dollar. This is not true of instruments issued by private financial institutions, which can offer liabilities that promise to pay a certain amount of dollars in the future but must accept the market’s present evaluation of such liabilities.¹⁸

In other words, the central bank’s ability to do so does not depend on the fact that there do not exist close substitutes for its liabilities, but on the special nature of such liability: ‘The special feature of central banks, then, is that they are entities the liabilities of which happen to be used to define the unit of account in a wide range of contracts that other people exchange with one another’ (Woodford 2000, p. 258).¹⁹

6. UNCERTAINTY, MONEY AND LIQUIDITY PREFERENCE

For many economists, money essentially is standard of value and means of payment, whereas the Keynesian approach focuses on the function of money as a store of value. The Keynesian focus is on the demand for idle money because uncertainty crucially characterises the environment in which decisions must be made.

Regarding money as a means of payment does not necessarily imply to downplay uncertainty and its relation to money. Although some of those who underline the function of money as a means of payment actually hold that uncertainty has little to do with money (see, e.g., Parguez and Seccareccia 2000), many argue that, in fact, the use of money to carry out and settle transactions is indissolubly connected to uncertainty. In a world of perfect certainty there would be no need for money (see, e.g., Goodhart 1989). However, it must be pointed out that the way in which the connection between money and uncertainty enters the picture is different from the way it does in the Keynesian approach.

For Post Keynesians, money essentially is a defence from uncertainty because it allows agents to avoid, or postpone, their commitments to purchase illiquid assets with higher expected yields but riskier; in particular, it allows firms to defer their most crucial decisions, i.e. investment. In so far as attention is focused on money as means of payment, it is difficult to look at money in the Keynesian way.

¹⁸Even if these liabilities were not perfect substitutes for other financial instruments, private financial institutions could not determine both the value and the nominal yield of their liabilities, whereas the central bank can determine both the value of its settlement balances in existence and the nominal yield on those balances.

¹⁹See also Woodford (2003, pp. 31-7) and Sardonì (2008) for a more detailed exposition of this debate on monetary policy.

Thus, we are left with a theoretical dilemma. The approach to money which emphasises the functions of money as standard of value and means of payment has the merit to provide a simpler and more straightforward analytical context in which money is clearly defined and plays roles that can be played only by it. At the same time, espousing this approach might imply the risk to downplay the importance of decision-making in an uncertain environment. The way out from this difficulty consists in separating the notion of demand for (idle) money from the notion of demand for liquidity, or liquidity preference, as a defence from uncertainty.

The need for liquidity, in economies with well developed financial institutions, can be satisfied by purchasing other assets rather than money strictly defined. But the problem of the agents' liquidity preference needs to be considered also at a more general level, in which a high liquidity preference manifests itself in the form of abstaining from spending altogether. Also in this case, a high liquidity preference does not imply a high demand for money.

The crucial spending decisions in capitalist economies are those made by firms. A high degree of uncertainty, as well as a low state of confidence, can induce firms, not to make investment for future production or to produce less than they could. In these cases, it can be said that firms have a high liquidity preference or, more correctly, that they are highly illiquidity-averse. Anyhow, the firms' 'prudent' attitude toward the future does not translate itself into a higher demand for money, but the other way around.

If firms need external financing to carry out their activities and they decide not to invest or to produce less than they can, their demand for money (as a means of payment) declines. In modern market economies, production and investment decisions imply, first of all, an increase in the demand for credit, i.e. in the demand for money as a means of payment. Banks create money through lending and the quantity of money in circulation increases.

Banks can certainly decide not to lend, or to lend to a smaller extent than that the economy as whole requires. In this sense banks can decide not to become less liquid, but this does not mean that their demand for money, in the form of larger reserves, is high. They simply do not create all the money demanded by the economy. On the other hand, banks' decisions not to lend (to remain liquid) cannot be assimilated to decisions to keep the public's resources liquid as this would amount to regard banks only as mere intermediaries rather than institutions which create money.²⁰

²⁰McLeay et al. (2014, p. 15) correctly point out: 'when households choose to save more money in bank accounts, those deposits come simply at the expense of deposits that would have otherwise gone to companies in payment for goods and services. Saving does not by itself increase the deposits or funds available for banks to lend. Indeed, viewing banks simply as intermediaries ignores the fact that, in reality in the modern economy, commercial banks are the creators of deposit money.'

If, on the other hand, firms own internal funds that can be used to finance investment and/or production but they decide to abstain from spending to transform their resources into an illiquid form, also in this case there is no additional demand for money strictly defined.²¹

Finally, the problem of firms's preference for liquidity can be dealt with also from a different perspective, chosen also by Keynes himself in chapter 12 of *The General Theory*. In an uncertain context firms have to make irrevocable decisions. This is always true, but modern economies with well organized financial markets offer the possibility to render such decisions 'less' irrevocable, differently from what was the case in the past. Thanks to the existence of well developed financial markets, it is possible to revert decisions to become illiquid at any time in the future (Keynes 1973, pp. 150-1).²² In other words, the existence of well developed financial markets makes investment, so to say, less illiquid. Also from this point of view, liquidity preference in an uncertain environment can be satisfied by the existence of organized financial markets.

We can conclude this section by pointing out that all the considerations above about the demand for money and liquidity do not necessarily imply that a high demand for liquidity is never satisfied by holding money strictly defined. The idea that the demand for money strictly defined as store of value tends to vanish in sophisticated economies is a valid conclusion in *normal* situations, that is to say situations in which the economic environment is relatively stable and functioning in an orderly way. But it is necessary to contemplate also *critical* situations, in which the demand for liquidity might be satisfied only by holding money strictly defined.

There can arise situations in which the agents demand money strictly defined rather than other instruments. Such situations occur when the degree of confidence and trust in the economy declines drastically. Severe economic shocks that lead to a general crisis are situations in which the demand for money strictly defined can be not only positive but significantly large.

In such situations agents trust only, or almost only, money strictly defined, in the form of the central bank's liability or banks' demand deposits, because it is guaranteed by the state directly or indirectly.²³ Money is seen by the economy as the instrument that can be trusted most.

²¹Parguez and Seccareccia (2000, p. 118) point out that the analytical picture does not significantly change if firms use internal funds to finance their investment: 'the internal generation of finance via business profits is merely the macroeconomic outcome of the new indebtedness of other agents in a monetary economy.'

²²As well known, and eloquently illustrated by Keynes (1973, pp. 151-164), this possibility to alleviate the negative effects of uncertainty on investment and/or production also gives rise to highly speculative and unstable financial markets. An aspect that cannot be considered here.

²³For example, through mandatory insurance on bank deposits.

Moreover, the crisis affecting an economy can be so severe that not even the national money is trusted by agents, who thus switch to an alternative one. Phenomena of hyperinflation and/or social and economic turmoil, that lead to the adoption of a foreign currency as the economy's means of payment and unit of account (e.g. cases of dollarisation) are obvious examples. Thus, in conclusion, the demand for money strictly defined as a store of value should be dealt with by distinguishing between two states of the economy: tranquil and disturbed states.

7. CONCLUSION

Many Keynesians and Post Keynesians emphasise the function of money as store of value, which they regard as crucial in economies characterized by uncertainty. Important economists such as Hicks and Kaldor, instead, have pointed out the importance of money as standard of value and means of payment. For Hicks, the money's functions of standard and means of payment are strictly connected to one another. A certain instrument can be means of payment and allow the final settlement of contracts because it is also the economy's standard of value. Kaldor argues that money 'rules the roost' not because of some special properties but because it is the economy's standard of value.

At the same time, both Hicks and Kaldor hold that the role of store of value can be played also by other assets. The instrument that plays the two fundamental roles of standard and means of payment, denoted as money strictly defined, generally is not demanded by agents to defend themselves from uncertainty. In modern economies with well developed financial markets, there exist other instruments that normally are as safe and liquid as money. Only in some critical situations, can the demand for liquidity reduce to demand for money strictly defined.

It might seem, however, that the difference between Keynes's and other views of money is less significant than it appears. For Keynes, money is a 'vague' notion, in the sense that we can define money differently according to the analytical needs. Given a set of assets of varying liquidity, the subset of highly liquid assets can have different dimensions. In this context, therefore, to say, for example, that speculators demand money does not necessarily mean that they hold cash or demand deposits with banks (M_1).

In our opinion, such a reconciliation is more apparent than real. The assets contained in the 'liquid subset' do not have all the same attributes. Not all the liquid assets function as standard of value and means of payment. To put under the same cover both money strictly defined and highly liquid assets is not only 'vague' but also potentially misleading when dealing with uncertainty and liquidity preference. As we saw, a high liquidity preference can determine a decline rather than an increase in the demand for money strictly defined.

The way out, then, is to abandon definitely the idea that the agents' demand for liquidity is generally satisfied by money strictly defined. In this way, the analysis of money can concentrate on its fundamental roles in the process of production

and circulation of goods, while the analysis of decision-making in an uncertain context can be carried out at a different level by adopting a more general notion of liquidity preference as a defence from uncertainty.

REFERENCES

- Blanchard, O. J. and Fischer, S.: 1989, *Lectures on Macroeconomics*, MIT Press, Cambridge Ma.
- Chang, W., Hamberg, D. and Hirata, J.: 1983, Liquidity preference as behavior toward risk is a demand for short-term securities – not money, *American Economic Review* **73**(3), 420–7.
- Friedman, B.: 1999, The future of monetary policy: The central bank as an army with only a signal corps?, *International Finance* **2**(3), 321–338.
- Friedman, B.: 2000, Decoupling at the margin: The threat to monetary policy from the electronic revolution in banking, *International Finance* **3**(2), 261–272.
- Goodhart, C. A. E.: 1989, *Money, Information and Uncertainty*, 2nd edn, Macmillan, London.
- Handa, J.: 2000, *Monetary Economics*, Routledge, London and New York.
- Hicks, J.: 1939, *Value and Capital. An Inquiry into some Fundamental Principles of Economic Theory*, Oxford University Press, Oxford.
- Hicks, J.: 1967, *Critical Essays in Monetary Theory*, Clarendon Press, Oxford.
- Hicks, J.: 1989, *A Market Theory of Money*, Clarendon Press, Oxford.
- Holmström, B. and Tirole, J.: 2011, *Inside and outside liquidity*, MIT Press, Cambridge.
- Kaldor, N.: 1960a, *Essays on Economic Stability and Growth*, Vol. 1 of *Collected Economic Essays by Nicholas Kaldor*, first edn, Duckworth, London.
- Kaldor, N.: 1960b, Keynes' theory of the own-rates of interest, *Essays on Economic Stability and Growth. Collected Economic Essays by Nicholas Kaldor*, first edn, Vol. 1, Duckworth, London, pp. 59–74.
- Kaldor, N.: 1960c, Speculation and economic stability, *Essays on Economic Stability and Growth. Collected Economic Essays by Nicholas Kaldor*, first edn, Vol. 1 of *Collected Economic Essays*, London: Duckworth, pp. 17–58.
- Kaldor, N.: 1989, Origins of the new monetarism, *Further Essays on Economic Theory and Policy. Collected Economic Essays by Nicholas Kaldor*, Vol. 9, Holmes & Meyer, New York, pp. 160–177.
- Keynes, J. M.: 1937, The general theory of employment, *Quarterly Journal of Economics* **51**(2), 209–23.
- Keynes, J. M.: 1971, *A Treatise on Money. The Pure Theory of Money*, Vol. 5 of *The Collected Writings of John Maynard Keynes*, Macmillan, London.
- Keynes, J. M.: 1973, *The General Theory of Employment Interest and Money*, Vol. 7 of *The Collected Writings of John Maynard Keynes*, London: Macmillan.
- McLeay, M., Radia, A. and Thomas, R.: 2014, Money creation in the modern economy, *Bank of England Quarterly Bulletin* **54**(1), 14–27.
- Parguez, A. and Seccareccia, M.: 2000, A credit theory of money: the monetary circuit approach, in J. Smithin (ed.), *What is Money?*, Routledge, London and New York, pp. 101–123.

- Robertson, D. H.: 1936, Some notes on Mr. Keynes' general theory of employment, *Quarterly Journal of Economics* **51**(1), 168–191.
- Sardoni, C.: 2007, Kaldor's monetary thought: a contribution to a modern theory of money, in M. Forstater, G. Mongiovi and S. Pressman (eds), *Post Keynesian Macroeconomics*, Routledge, London and New York, chapter 8, pp. 129–46.
- Sardoni, C.: 2008, Some notes on the nature of money and the future of monetary policy, *Review of Social Economy* **66**(4), 523–37.
- Tobin, J.: 1958, Liquidity preference as behavior towards risk, *Review of Economic Studies* **25**(2), 65–86.
- Viner, J.: 1936, Mr. Keynes on the causes of unemployment, *Quarterly Journal of Economics* **51**(1), 147–167.
- Woodford, M.: 2000, Monetary policy in a world without money, *International Finance* **2**(3), 229–60.
- Woodford, M.: 2003, *Interest and Prices*, Princeton and Oxford: Princeton University Press.