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# TEXTO PARA DISCUSSÃO

Explorations into the concept  
of liquidity preference

Nº 322

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Fevereiro de 1995

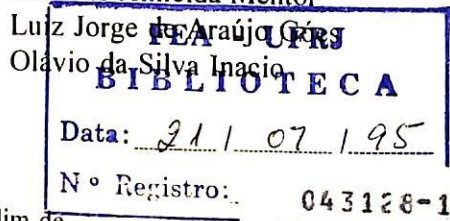
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Ficha Catalográfica

CARVALHO, Fernando José Cardim de.



Explorations into the concept of liquidity preference. / Fernando J. S. Cardim de Carvalho. -- Rio de Janeiro: UFRJ/IEI, 1995.

44p.; 21 cm. -- (Texto para Discussão. IEI/UFRJ; 322)

Trabalho preparado para o projeto: "Money and Financial Markets and Policies" para IEI/UFRJ e Faculdade de Economia Candido Mendes.

Inclui Bibliografia

1. Liquidez. 2. Moeda. I. Título. II. Série

Explorations into the concept of liquidity preference

Shortly before The General Theory came to light, Keynes announced his research program as consisting in the study of truly monetary economies. These, that he called monetary production economies, were defined by a certain number of features, foremost among which was the special role money performs in them. According to Keynes, in a monetary economy one could not conceive either of a short-period nor of a long-period equilibrium position without considering the behavior of money "between the first state and the last" (CWJMK XIII, p 409). A monetary economy could be conceived as in a state of rest in a large number of long-period equilibrium positions but in order to say which would actually be achievable one had to be able to describe the actual monetary policy that was being followed in that economy. (CWJMK XXIX, p. 55)

After the publication of The General Theory, Keynes insisted on the special role money played in the kind of economy he was modeling. In "The General Theory of Employment", Keynes argued that there were two main novelties in his book: the treatment of uncertainty and its relationship with money, and the concept of propensity to consume (presented in the paper in this order). Keynes accused the classics of accepting lunatic behavior when they referred to the possibility of retaining money as a store of value, because in a world affected only by measurable risk there would always be an alternative asset to dominate money. According to Keynes, money would lull one's disquietude when subject to unpredictable risks (non-measurable uncertainty) because of its special properties so that only in a model that recognized these risks money could be approached as an asset. Keynes's principle of effective demand, that is, the

possibility that demand may falter because agents use their income to buy non-reproducible wealth, specially in monetary form, instead of using it to purchase reproducible wealth, followed from this particular conception. The long-period non-neutrality of money rested, thus, on the positing of money and reproducible capital as alternative forms of accumulation of wealth.

The same fundamental ideas were also expressed in a parallel debate with Ohlin, Robertson and others. Here, Keynes defended his proposition that interest rates were a reward for parting with liquidity and, thus, for parting with money, that was the asset endowed with the highest liquidity premium of all. Again, Keynes was arguing that money was a form of wealth and interest rates were the price that guided the choice between liquid and illiquid wealth, instead of the choice between present and future consumption. As money was, however, also demanded as a means of payment (to finance both the expenditures with normal transactions and the discretionary spending, that Keynes then called the finance motive for demanding money), monetary theory was complicated by the need to consider this duality of roles for money.

The complexity of the argument was to be the cause of much misunderstanding in the development of liquidity preference theory. The most important difficulty to be faced was the relationship between money and credit. In effect, most authors seemed to understand Keynes's proposed monetary theory of the interest rate as a cumbersome way of saying that interest rates were determined by credit conditions, even though Keynes insistently dismissed this view in his debate with Ohlin and Robertson. Milton Friedman, for instance, could accuse Keynesians of confusing money and credit. Blinder, years later, explicitly resurrected loanable funds theory (according to which interest rates are determined by supply of and demand for credit) as the way to discuss the influence of interest rates in his Keynesian model (Blinder, 1989).

The dominant view seemed to have been proposed by Hicks, according to whom in a general equilibrium model the equilibrium position of any market depends on what happens in all other markets. By Walras' law, one can always drop one of the markets when solving the whole model. If one dropped the market for credit, one would be advancing liquidity preference, if the money market was dropped, one would be adopting loanable funds theory. It was a matter of convenience, perhaps, certainly of preference, but not of substance.

In fact, the evolution of the mainstream approach to liquidity preference led to a convergence with the quantity theory of money, specially in the form Friedman gave it in the fifties. To separate Keynesians and quantity theorists there remained only their expectations as to the interest elasticities of the money demand function, an issue to be settled by empirical testing.

There may be reasons, however, to consider liquidity preference in a different way, and many "non-orthodox" authors followed this line, that was more faithful to Keynes's own original conception. In *The General Theory* itself, in a difficult and for long forgotten chapter (the seventeenth), Keynes emphasized the line of considering money as an asset, interest rates as a reward for parting with the specific attribute monetary assets would have, their very high liquidity premium. The theory could be generalized to consider other kinds of assets, that would pay an "own-rate of interest". The equivalence of the market interest rate as an index of money's liquidity premium was clear also in other works where it was seen as money's marginal efficiency, term created by Keynes to refer to the rate of return on real assets. According to this line of interpretation, the attention given to the determination of the interest rate by the interaction between supply and demand for money results from the level aggregation chosen by Keynes, confronting money, on the one hand, to bonds, on the other. This choice of aggregates simplified the problem of asset choice from the angle Keynes privileged, that was the

opposition between liquid and illiquid assets. It was, however, only a preliminary step towards a more general theory of asset pricing, highlighting the special role that was to be given to money in an economy marked by non-measurable uncertainty. In this sense, liquidity preference should not be seen as an awkward way of conceiving the demand for money, but as the abstract argument explaining how the price of assets (and debts) are formed.

It was this perspective that, in fact, seemed to justify the whole effort of conceiving The General Theory as an explanation of why and how money could affect the real economy, not only in the short but also in the long run. The relationship between money and capital assets was, however, quickly forgotten in mainstream Keynesian macroeconomics.<sup>2</sup> Authors like Joan Robinson and Richard Kahn, first, and Davidson and Minsky, among others, later, sustained that the original path was more fruitful. In this paper, we try to reconstruct their attempts to develop Keynes's original argument to show, then, that some extensions of the concept are still to be completed so that a research program defined around the liquidity preference hypothesis is still very much alive. To do it, we present first, in section 2, a summary of Keynes's General Theory presentation of liquidity preference as a theory of money demand. Section 3 extends the argument to the examination of asset pricing, introducing the arguments of Robinson, Kahn, etc. Section 4 presents the idea that money supply as much as money demand can be approached through liquidity preference, in an argument that could be seen as a way out of the usual confrontation

<sup>2</sup> Actually, it would sometimes surface in the form of *curiosa*. For instance, Tobin's model of money and growth would suggest that monetary economies should be seen as less efficient than non-monetary economies since the latter would be capable of growing more quickly. Also Clower's dual decision hypothesis would be construed as meaning that non-monetary economies are more efficient than economies where money exists. Of course, both cases illustrate the difficulties of introducing money in models that have no need of them.

between "horizontalists and verticalists". Section 5 focus on extensions of the theory to deal with chronic inflation. Section 6 presents some provisional remarks related to the behavior of asset demands in open economies. Finally, a summary is given in section 7.

## 2. Money Demand

### a. Money and Contracts

The cornerstone of Keynes's, and post Keynesian, monetary analysis is the relation between money and contracts. Money-denominated forward contracts are an essential element of coordination of an economy where production is organized by autonomous private agents promoting seeking individual gain. Forward contracts reduces and socializes the uncertainties of undertaking production activities that take time to unfold and allows some measure of cost control on the part of entrepreneurs (Cf. Davidson, 1978). As Max Weber explained, a modern capitalist economy is based on the rational calculation of advantages to be accrued by the individuals that organize production. This calculation of advantages requires a common unit of reckoning prospective costs and benefits. A money-denominated system of forward contracts establishes this unit of account at the same time in which it increases the degree of predictability of economic processes.

Accordingly, Keynes states that the primary concept of money is money-of-account, the unit in which contracts are expressed (CWJMK, V, p. 3). Money proper, that is, the thing which effectively circulates and discharges debts represents the money-of-account. Again, according to Keynes, the moneyness of the legal tender, the thing that settles debts, is derived from its relation to the money-of-account and to contracts. Other assets that also play the role of money, namely of being accepted to

liquidate contractual debts, derive their own moneyness from the possibility of replacing the legal tender under certain conditions.

Money becomes an asset precisely because of its capacity to discharge contractual debts when they come due (Davidson, 1978). This is the source of its liquidity attribute. Other assets can share this property depending on their degree of convertibility into money proper, the degree of risk involved in their exchange for money<sup>3</sup>. Forward money contracts, on the other hand, are a factor of continuity over time since they define flows of goods and services to be made available and their money values for a continuum of future dates. The more complete a system of forward contracts is, the safer an asset money becomes. When the time to settle debts comes, he who possesses money does not run the risks of being incapable of honoring his commitments and suffering the sanction such a system must impose in such cases. Money becomes, thus, a general form of wealth, able to liquidate any kind of commitment<sup>4</sup>, in contrast to other forms of wealth the convertibility of which into means of payment is conditional on the state of their markets at that same moment. On the other hand, it is also a safe claim to wealth in the future period covered by contracts: it is a claim against income-to-be-produced, at fixed exchange rates. Future auction prices remain uncertain, but risks are largely eliminated in the case of goods and services produced to order and much reduced in the case of goods produced to market when spot prices are stably related to costs of production, that are themselves set by contract.

The character of money being a general form of wealth makes it a suitable means to effect defensive strategies in the

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3 Something which depends on the existence of spot markets for existing stocks of these assets. See Kaldor (1960). Davidson (1978) and Carvalho (1992).

4 Since one can see even spot transactions as a special form of contractual relations where the nature of the operation does not make the signature of formal contracts worthwhile.

face of an uncertain future. It is an asset the return of which comes in the form of a liquidity premium rather than a pecuniary compensation. Other assets do not offer the same defense against uncertainty and compensate for this imperfection by paying interest to their holders. Under uncertainty, that is, the possibility that the future will bring unexpected changes, flexibility to adapt to new environments is a gain in itself. That is why people may prefer to remain with their choices open until things get clear enough to allow a proper decision to be made. Holding money is a form of precaution. If wealth accumulation is a forward-looking activity, agents will, in principle, prefer to remain liquid because no one knows for sure what the future will look like and, thus, which specific form of wealth would result more advantageous. To accept less flexible alternatives, then, wealth-holders have to be bribed that is, they have to be pecuniarily compensated for the reduced liquidity of assets other than money. The interest rate, as the representative of this compensation, has to be whatever is necessary to convince agents to part with liquidity. The higher the degree of illiquidity of an asset, the higher must be, in equilibrium, the compensation paid to convince wealth holders to accept the risks it represents. This mechanism of determination of interest rates is the fundamental statement of liquidity preference theory.

#### b. Industrial Circulation and Financial Circulation

Many post Keynesians consider Keynes's discussion of monetary matters in the *Treatise on Money* superior to that presented in *The General Theory*.<sup>5</sup> In the latter, Keynes discussed liquidity preference and the determination of interest rates in terms of supply and demand for money. In the *Treatise* Keynes adopted a more general approach, based on the distinction between two circuits of monetary circulation: industrial circulation and financial circulation.

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5 For a dissenting voice see Minsky (1975).

Industrial circulation refers to the amount of money in use to support the flow of goods and services produced in an economy. The amount of money required to do it depends, naturally, on the average interval during which money is retained between transactions. Keynes distinguished between households and firms for having different habits of payments which implied different velocities of money circulation. Industrial circulation embodies a view of money very close to that of the Quantity Theory. It seems in accord with Keynes's criticism of the Quantity Theory expressed in *The General Theory* that it was not wrong but that it was incomplete. Keynes sustained one had also to consider a second monetary circuit, the financial circulation. This circuit included operations with financial assets, being, thus, unrelated to current income. Moreover, in this circuit, money was not just a means of circulation, it could also be an subject of circulation. Money itself could be held as an asset. This notion went much beyond the Marshallian view that money was a convenience a cheap way of covering the period between income inflows and outflows.

Orthodox theory had actually always acknowledged the possibility of hoarding, even though it was in the borderline with irrationality. Keynes's concept of financial circulation and of retention of monetary assets referred to something more important for the economy's operation. It included both active balances used to buy and sell assets and inactive balances held in the expectation of favorable future changes in the prices of assets. Confronted with the perspective of capital losses on financial assets were interest rates to rise in the relevant future, wealth holders might prefer to hold money instead. On the other hand, those expecting a fall in future interest rates would buy securities now even if they had to borrow funds to do it. Keynes called the first group Bears and the second Bulls. Banks would intermediate their operations by accepting deposits from bears and providing loans to bulls to allow them to buy securities. In equilibrium, interest rates would settle at the level in which both bulls and bears would be satisfied with their financial operations.

Money, then, would perform very complex functions in this kind of economy, connecting industrial and financial circulations, operating in a dual role as a means of payment and of an asset, facilitating the operation of the real side of the economy, but also being a potential cause of trouble in the case of monetary assets becoming more attractive than real capital assets. Inflationary or deflationary forces could be triggered if money flowed from one circuit to the other. Banks and financial institutions, in particular, performed a crucial function in this economy, not only as intermediaries, but as actual creators and distributors of money among agents operating in each circuit.

### c. Motives to Demand Money

In *The General Theory* unfortunately, Keynes downplayed the dichotomy between industrial and financial circulation in favor of a more abstract approach in which an undifferentiated public demands money for various motives. Every exchange operation in a monetary economy, whatever its object, involves a transference of money from a buyer to a seller. Someone who desires to make a purchase must, thus, get hold of money first. Distinctions as to the object of purchase may be analytically convenient but do not refer to any fundamental difference as to the role of money in transactions. Thus, for instance, one can define active balances as those held in advance of some definite transaction in opposition to inactive balances held for possible but still undecided purchases in the future. In Keynes's *General Theory* liquidity preference was analyzed in terms such as these. The industrial circulation became the transactions motive, as the demand for active balances, and the financial circulation was transformed into the precautionary and speculative demands for money, a proximate approach to that of inactive balances.<sup>6</sup> The latter was kept as the

<sup>6</sup> In fact, one may think of the financial circulation as inactive balances in a more restricted way. that is of balances held independently of projected purchases of goods and services. even though it may be justified by prospective purchases of financial assets The precautionary motive was

determinant of interest rates, together with the (exogenously given) money supply.

The analysis of the demand for money for transactions does not involve deep differences between Keynesian analysis and other strands of monetary thought. As it was stated above, on this matter Keynes considered the classics to be incomplete rather than wrong. The transactionary demand for money, that is, the holding of money in anticipation of a definite act of expenditure, would depend on the projected purchases and the habits of payment. In the aggregate, this could be reasonably approximated by the level of current income, given the institutions that regulate forms of payment.<sup>7</sup> On the other hand, the speculative demand was more a development than a radical departure of the ideas contained in the Treatise. The concept and its application was made more precise, being utilized to set the price of debts, that is the interest rate, rather than prices of assets in general, allowing Keynes to differentiate, when necessary or adequate, the determination of marginal efficiencies of assets from the interest rate (see Kregel, 1988).

The speculative motive is based on the idea of normality Keynes inherited (and modified) from Marshal. Rejecting the neoclassical notion of a natural rate of interest rooted in real factors (such as time preferences and productivity), Keynes suggested instead that every agent operating with assets has a

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mistreated by Keynes in The General Theory, as will be argued below It should be seen as an element of the financial circulation, but Keynes actually merged it with the transactions motive! For a detailed examination of the transition between the bears and bulls of the Treatise and the demand for money and demand for other assets in The General Theory see Kregel (1988). For a discussion of the origins of the notion of liquidity preference as a model for asset choice see Kregel (1984).

<sup>7</sup> Davidson has insisted on the importance of realizing that the transactionary demand for money should be seen as depending on expected, rather than current, income. The distinction is particularly important when one projected changes in discretionary expenditures. See Davidson (1965).

subjective evaluation, given his own experience and access to information, of what constitutes a normal rate of interest, expected to prevail after short-term fluctuations are allowed for. This normal interest rate acts as an anchor to his expectations of future movements of the interest rate and defines whether the agent will be a bear or a bull in face of the current interest rate. The latter will be determined at the point in which bulls and bears balance each other, as proposed before in the Treatise. In these terms, if we call  $r$  the market interest rate and  $r^*$  the normal rate of interest, we have the following decision rules:

bears:  $r - r^* < 0$  and thus  $E (dr/dt) > 0$  so  $M_s > 0$  (no bonds are purchased)

bulls:  $r - r^* > 0$  and thus  $E (dr/dt) < 0$  so  $M_s = 0$  (the money is used to buy bonds)

A third motive to hold money is introduced in The General Theory that should also be part of the financial circulation, which is the precautionary motive. Keynes gave it, however, a surprisingly superficial treatment since one could argue that it is as a precaution against an uncertain future that money assumes its peculiar role in a monetary economy.<sup>8</sup>

It seems that Keynes was overwhelmed with the difficulties of analyzing the precautionary motive since it required to consider explicitly the influence of states of confidence, a notoriously elusive variable, on the demand for money. As Kahn (1954) showed, we can consider the precautionary demand as inducing agents to hold buffer stocks of both money and securities in order

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<sup>8</sup> According to Keynes, the precautionary motive is "to provide for contingencies requiring sudden expenditure and for unforeseen opportunities of advantageous purchase, and also to hold an asset of which the value is fixed in terms of money (...)" (Keynes, 1964, p. 196). The latter element means to be able to settle debts when necessary.



to avoid capital and income risks, respectively. Wealth holders would recognize that any expectation they may have is liable to fail and would hedge against failing expectations by keeping reserves of money and of securities. In this sense, bulls, for instance, would not commit all their resources to securities unless they expected a future fall of the interest rate with certainty. The combination between speculative and precautionary motives would, thus, mean that the speculative demand has to do with specific expectations as to future movements of the rate of interest and the precautionary motive with the degree of confidence on those expectations.

Finally, in the debates that followed the publication of *The General Theory* Keynes acknowledged a fourth motive to hold money, which he called finance motive. It was meant to be a bridge between industrial and financial circulations because it referred to balances that are held inactive in advance of the purchase of investment goods. The finance motive was actually an element of the transactions demand but marked by a different behavior, given its out-of-routine character that would break the proportionality between current income flows and money demand. The finance demand for money would increase when prospective not current, income was increased by planned discretionary spending. On the other hand, balances were kept with a view to a definite expenditure plan as with other transactions made in the economy. Money was a convenience rather than an asset. Although Keynes made it clear that the finance motive is a reason to demand money, the use of the term finance gave origin to all kinds of equivocations, relating it to savings, to financial relations, etc., in a debate that was revived very recently.<sup>9</sup>

<sup>9</sup> See Asimakopulos (1983: 1986). Kregel (1981/5; 1986). Davidson (1986). that were, among other papers, the main contributions to this discussion. For a very good and clear account of the finance motive, see Chick (1983, pp. 198/200). See also Wells (1981). The two rounds of debates around the issue, in the thirties and in the eighties, are summarized in Carvalho (1994).

Although the structure of the arguments were deeply changed, this version of liquidity preference conserved the main aspects of the approach: the relation between money, uncertainty and contracts. The relation between money and uncertainty was given two forms: one the one hand, it gave a place to influences like the state of confidence and the precautionary motive; on the other, it replaced the idea of a natural rate of interest by the notion of normal rates of interest, formed subjectively by the individuals operating in the money market. As Shackle (1961) remarked, this gave to the interest rate a very peculiar nature. In his words, interest rates have to be restless variables, with equilibrium rates always changing values since they result from the interaction between groups acting under the influence of heterogeneous expectations. Necessarily, somebody's expectations are always being disappointed leading to some revision of their views and, thus, changing the balance between bulls and bears. A durable equilibrium configuration, in these circumstances, would be a contradiction in terms.

### 3. Liquidity Preference as a General Theory of Asset Pricing

The aggregative structure utilized in most of *The General Theory* defined two composite assets: money and bonds.<sup>10</sup> In this case we may safely state, as Keynes did:

“Thus the rate of interest at any time being the reward for parting with liquidity, is a measure of the willingness of those who possess money to part with their control over it.” (Keynes, 1964, p. 167)

<sup>10</sup> Sometimes bonds and capital goods are fused together as in parts of chapter 12. In the *Treatise* this confusion was widespread and gave origin to criticisms even from Keynes's most intimate collaborators. See, for instance, Kahn's letters to Keynes in *CWJMK*, XIII. One should notice, on the other hand, that money is a composite asset too. See footnote 1 to page 167 in Keynes (1964).

Liquidity in *The General Theory* could only be associated with money or with bonds. In this dichotomic world, the interest paid on bonds can only be a compensation for their lower degree of liquidity as compared with money.

Working with only two composite assets had the advantage of making it clear that the true nature of interest resided in its being a compensation for the risk of illiquidity rather than a reward for abstention of consumption per se, which was the "classical" view of interest. It had, however, two major weaknesses: it made possible for neoclassical synthesis Keynesians to reduce liquidity preference to simply a formulation of a money demand function; secondly, it could lead less careful readers to ignore that the interest rate was an index related to a composite asset. These less careful interpreters tended to choose arbitrary market rates to serve as the interest rate of *The General Theory*, giving rise to endless but essentially useless (because misdirected) debates as to which rates Keynes had in mind when presenting his money demand theory and his marginal efficiency of capital model of investment and the empirical robustness of estimated relationships.

The neoclassical synthesis was, in general, guilty of both faults and so were many of the neoclassical critics of Keynes. Nevertheless, it could be easily seen that liquidity preference could be generalized into a general theory of asset pricing based on the same general principle that different degrees of liquidity should be compensated by pecuniary returns that would define the rate of return obtained for the possession of different assets.<sup>11</sup> As pointed by Wells (1983, p. 533), liquidity preference is a theory to explain

<sup>11</sup> As a matter of fact, Keynes himself did it in *The General Theory*, in chapter 17, where he dealt with many assets instead of only two and built a model of asset pricing based on attributes of assets, including a liquidity premium accruing to diverse assets in different degrees, in his own-rate of interest scheme.

the spread between the rates of return associated to different assets, an analog to Ricardo's model of differential rent.

An extension to a richer menu of assets could be undertaken along two lines: one could, as done by Kahn (1954), explore how Keynes established the margins of indifference between money and bonds in chapter 15 of *The General Theory*, to serve as a basis for a generalization; alternatively, as Robinson (1951) did, one could extend the analysis of chapter 17 of that book, to consider a richer menu of asset attributes to differentiate their prices. Let us examine each of these propositions separately.

Kahn extends the argument that supports the speculative demand for money from a two-asset (money and bonds) setup to a three-asset structure (money, bills and bonds). The speculative demand for money was postulated to emerge when the wealth-holder expects that the interest rate will increase in the future so that bonds will suffer a capital loss. The margin of indifference between money and bonds was established then when the interest paid by a bond was equal to the expected rate of increase of interest rates so that the income to be earned would be exactly compensated by the loss in capital value. Kahn extends then the same principle to differentiate now between bills and bonds. In this case, the margin of indifference between them would be set as follows:

"If a person is indifferent between bonds and bills, then, apart from considerations of risk, it must mean either that the two rates coincide and he expects the long-term rate to remain constant, or that the rate (measured as a proportional rate per annum) at which he expects the long-term rate of interest to be rising (i.e. the price of bonds to be falling) is equal to the excess of the long-term rate of interest (the rate on bonds, measured as a rate per annum) over the short-term rate of interest (the rate on bills, measured as a rate per annum) - or a similar proportion in terms of an expected fall in the long-term rate of interest if the

short-term rate is higher than the long-term rate.” (Kahn, 1972, p. 73).

With  $r_s$  standing for the short rate of interest and  $r_l$  for the rate paid on a perpetuity, the margin of indifference between bonds and bills would be defined by the equality:

$$r_l - r_s = E [dr/dt]^{12}$$

Thus, securities of different maturities could be ordered in terms of a yield curve, in which the demand for each type of security would depend on expectations as to the future behavior of the spectrum of interest rates in precisely the same way the speculative demand for money was described in *The General Theory*. One difficulty that would emerge in this new setup, however, was that one could hardly see why, in a world where securities of many maturities were available, including very liquid, capital-risk-free bills, would anybody bother to hold money.<sup>13</sup>

Joan Robinson chose a different path. Following Keynes's chapter 17, she developed liquidity preference into a theory of asset pricing by considering a different array of attributes assets would possess in different degrees. Robinson analyzed in detail the disadvantages that assets other than money would present, classifying them as: inconvenience (or “illiquidity in the narrow sense”); capital uncertainty; income uncertainty; and lender's risk (“that is, the fear of partial or total failure of the borrower”) (Robinson, 1979, p. 140). Specific assets would then be affected by each disadvantage in a different degree, and their prices would

<sup>12</sup> Equivalently, the margin between bonds and money was defined by  $r = E [dr/dt]$ .

<sup>13</sup> There were two ways out of this dilemma: one could, as Keynes did in *The General Theory* include very short-term bills in the concept of money itself; alternatively, as suggested by Wells (1983) to consider the model as explaining interest differentials, but not any return to money itself, in analogy with Ricardo's treatment of differential rent.

reflect wealth-holders' evaluations of these shortcomings. In her words:

“These qualities of the various types of asset are differently evaluated by different individuals. ... The general pattern of interest rates depends upon the distribution of wealth between owners with different tastes relatively to the supplies of the various kinds of assets. Each type of asset is a potential alternative to each other; each has, so to speak, a common frontier with every other and with money. Equilibrium in the market is attained when the interest rates are such that no wealth is moving across any frontier. Prices are then such that the market is content to hold just that quantity of each type Of asset which is available at the moment.” (Robinson, 1979, p. 143)

One should notice that also in Robinson's approach the demand for money proper to hold would be hard to justify, except for transactions costs involved in the purchase of bills, along lines similar to the Tobin/Baumol approach. Liquidity preference theory thus generalized, however, is no longer just a theory of money demand, but a hypothesis as to how asset prices are formed. The consideration of a set of close substitutes for money is not, in itself, an objection to the model.

Kaldor had been one of the first and most important authors to develop Keynes's chapter 17 model, in his seminal 1939 paper on speculation and stability (Kaldor, 1960). Keynes had shown that current prices of assets were determined by the agents' expectations of returns, considering risk. One could think returns to be constituted by four elements:  $q$ , the rate of quasi-income one expected to earn for keeping or using the asset;  $c$ , the carrying cost ratio incurred in the conservation of the asset;  $a$ , its rate of capital appreciation; and  $l$ , its liquidity premium, all of them reckoned in relation to their current market price. One would then define the

own-rate of interest of a given asset as:  $a+q-c+i$ . From this it would follow that for any asset,

$$CP=EP+Q-C+I$$

that is, the current price (CP) of an asset is given by the sum of the price the asset is expected to fetch in the date for which its resale is planned, plus the value of Q one expected to receive during the period in which the asset was held, minus its carrying cost, C, plus the value the asset-holder conferred to the possession of an asset with a given liquidity premium, all of them calculated in money terms. EP, Q, C and I are exogenously given (the state of long-term expectations), so CP has to move to assure the equality will be reached. If  $Q-C+I > 0$ , then  $CP > EP$ , which is called backwardation, which means that this asset is relatively scarce, so that purchasers are willing to pay a premium to get hold of it immediately rather than wait until the future date in which its price will be lower. If this particular asset is reproducible,  $CP > EP$  will be a sign of a unsatisfied demand, that is, of a profitable opportunity for the producers of that item.

Kaldor argued that it was the existence of spot markets for existing stocks of assets that determined their liquidity attributes. Thus, not only the degree of risk they represented in the eyes of investors but also how these expectations were to be affected by shocks of any kind depended on how these markets operated and, in particular, on how the participants behaved. According to Kaldor, participants in these markets could play three roles: hedging, speculation and arbitrage. The role of the speculator was strategic in that he could take the risks of acting against the market in the anticipation of future movements in the price of assets and this behavior could be stabilizing or destabilizing, depending on the range of price oscillations. It was the existence of speculators (and, in a lesser degree, of arbitrageurs) operating in organized markets that

created the possibility of disposing of assets that is the content of the liquidity premium. Liquidity, thus, is institutional: it depends on markets that are created by private agents or by the state. This insight was to be fundamental in the development of liquidity preference theory.

Among the authors that realized the importance of relating the concept of liquidity to markets and the behavior of speculators, Davidson may be the most consistent in his work. He generalized Kaldor's model to differentiate between liquid and illiquid assets, on the one hand, and to formulate a Keynesian theory of investment that springs from the model of asset pricing (Davidson, 1978, ch. 4). In a sense, Davidson completes Keynes's model of asset choice by showing that if one added a flow supply function for real capital assets to the scheme of asset demands obtained from the asset pricing model one could determine the volume of capital investment that corresponded to a given state of expectations. In addition, Davidson perfected Kaldor's insight as to the way markets operate by identifying the strategic stabilizing role performed by market-makers. These are residual operators, that perform precisely the functions Kaldor envisaged to stabilize markets: they act against the market tides, as if they were speculators that knew best where the market would ultimately head to. Behaving this way, market makers dampen fluctuations in the prices of assets, increasing their liquidity premium.

But liquidity preference theory, understood now as a theory of wealth accumulation, could be extended one step further. As Minsky (1975; 1982; 1986) has shown, an agent, when choosing assets to hold, is not restricted to his own original resources. The purchasing power over assets may be complemented by access to credit, that is, if the agent is willing to issue debts enlarging the possibility of buying assets. To approach the portfolio strategy of agents one has then to describe not only his decisions as to which assets to purchase but also what amount and under what terms

he is willing to issue liabilities. Minsky reinterpreted Keynes's own-rate of interest formula to represent the value of a portfolio of assets and debts ("negative" assets). The current value of a portfolio (CP) was determined by the expected yields of assets (Q), minus the carrying cost of the portfolio, mainly determined by the cost of interest paid on borrowed resources (C), plus the expected value of those assets when the time to rearrange the portfolio came, and the degree of liquidity of the position, represented by cash, cash-kickers and the facilities giving access to additional credit.

In Minsky's model two factors have to be considered if an agent's strategy of wealth accumulation is to be described by his whole balance sheet instead of just by his assets. One has to determine his solvency, which concerns the question of whether his assets are worth at least as much as his liabilities, and his liquidity position, i.e., his capacity to pay his liabilities as they come due with the yields of his assets or by appealing to his stocks of liquid assets. In other words, one has also to look at the time profiles of his expected cash outflows. Prices of assets depend on the demand for them. The possibility of issuing debts influences the demand for assets. The conditions in which debts can be created will determine the limits to asset demands and, thus, to the return rates offered on each type of asset. One could thus measure the fragility of a balance sheet by the comparison between expected inflows and outflows of cash as well as the stocks of liquid assets (that Minsky called cash-kickers). Minsky's model of cyclically changing financial fragility is, thus, a generalization of liquidity preference theory to deal also with liabilities.<sup>14</sup>

All these models, beginning with Keynes's chapter 17 of *The General Theory*, are able to give us short-period solutions for

<sup>14</sup> Minsky (1975) actually uses Keynes's own-rates of interest model and notation to present his own version of the balance sheet choices that accompany wealth accumulation.

the price of assets, when the quantities of each asset are given, and a longer-period solution when the availability of assets is allowed to change. In the complete model, all privately-created assets are allowed to change in order to describe a long-period equilibrium. Nevertheless, Keynes also postulated that money could not be reproducible as easily as non-monetary assets because, if it were, it would lose its peculiar characteristic of having the greatest liquidity premium of all assets (Keynes, 1964, p. 241n). In *The General Theory* the quantity of money available is taken as given, insensitive to the demands of the public.

#### 4. The Liquidity Preference of Banks and the Money Supply

Keynesian monetary theorists have generally assumed one of two views in relation to the determination of the money supply. Some take it to be controlled by the monetary authority, implying that a model that considers private behavior in the money market should take the money supply as an exogenous variable conditioning private decisions.<sup>15</sup> In contrast, for other Keynesians the amount of money in circulation is decided by the private agents themselves, be it because the monetary authorities are not capable of imposing quantitative limits on the amount of money they issue, or because private agents are themselves capable of creating money.

According to Kaldor, Keynes was an exogenist, that is, he believed in the possibility of controlling the quantity of money because he was never able to free himself entirely from classical ideas (Kaldor, 1982). Moore (1988, p. 8) even charges Keynes of discussing a commodity-money economy rather than a modern

<sup>15</sup> One could argue, of course, that even if the money supply is under the control of the central bank the latter could adopt a reaction function with certain private actions as arguments that would make it an endogenous variable. Be it as it may, the decision to adopt this or that function or to change it should be seen as beyond the control of private agents.

credit-money economy when he proposed that one fundamental property of money was its low elasticity of production. In the view of these authors, post Keynesians should abandon Keynes's treatment of money while keeping his theory of employment.<sup>16</sup> Others argue that money is actually taken to be exogenous only in *The General Theory*, but that in other works he would be an endogenist.

In this section we argue in favor of a different view, that could be seen as a third position between horizontalists and verticalists, defended by authors like Davidson, Kregel, and Dow (e.g., Dow, 1986/7; Dow and Dow, 1989), among others, that is more in agreement not only with Keynes's own writings on the behavior of banks but also with the empirical evidence as to how money markets operate in the real world. This third way rests on three main propositions, some of which were already presented: money is a form of debt; debts are issued in result of portfolio decisions; and liquidity is an institutionally-determined attribute.

We already argued that a particularly important Keynesian proposition is that money is an asset, a form of wealth. It is so because it represents, in the eyes of the public, purchasing power, a claim over goods and services available or to be produced. What is important, then, is that the public recognizes in a given thing the power of representing wealth, of being a claim on it. In principle, the thing that has this property is set by the state, in the laws that regulate the issuance and liquidation of contracts. The object that mandatorily liquidates contracts is the legal tender, the starting point to think of money proper in Keynes's sense. But some other may come to share the moneyness attribute if there are mechanisms that guarantee that these assets would be convertible into legal tender on demand and without capital risks. If a private agent is capable of issuing a claim against himself that

<sup>16</sup> These authors do not make it clear to what extent this should mean the abandonment of the whole liquidity preference theory, or the notions of uncertainty, the role of expectations, etc

is as credibly a claim on income as the legal tender is, it will be a perfect substitute for the latter. Again, to be perfectly convertible into money means to be perfectly liquid, and liquidity is an institutional question.<sup>17</sup>

Thus, although Keynes does say in *The General Theory* that the money supply is determined independently of demand, in a modern monetary economy most of what constitutes money is created by private agents. Assets other than the legal tender can become money if there is a market strong enough to guarantee its convertibility, at fixed prices, into legal tender. It is precisely because, by custom or by law, the monetary authorities of practically every modern capitalist economy guarantee the convertibility of some specified private liabilities, such as demand deposits at commercial banks, at par to legal tender that these liabilities become money. Thus, the supply of money certainly includes money issued by the Authorities and deposits created by Banks. If we consider, as Keynes did, that the Authorities can control the amount of money they originally create through their investment policy,<sup>18</sup> it is to banks we have to turn to examine whether money is or is not endogenously created. In Minsky's words:

"In our economy, money is created as bankers acquire assets and is destroyed as debtors fulfill their obligations."  
(Minsky, 1982, p. 17)

<sup>17</sup> Hicks (1967) gives us a stylized description of the emergence of a monetary economy in which institutional developments, particularly the creation of clearing houses and lenders-of-last-resort enlarge the stock of money beyond what could be seen as a narrower definition of a legal tender.

<sup>18</sup> Some would refuse even this possibility arguing that the amount of money the government actually issues serves mainly as reserves to the banking system and is thus predetermined by the creation of deposits, that is decided by banks to satisfy the public's demand. So the monetary base would also be endogenous, and not only the volume of deposits. This view is associated to Kaldor and Moore. In Brazil, the Kaldorian view was

Or, to quote Chick:

“The money supply is mainly the liability of the banking system, not of government. Most monetary policy actions thus rely on the banking system to intermediate between the initial policy action and the final effect on the money supply.” (Chick, 1979, pp. 19/20)

The liquidity preference model, as we saw, can be easily extended to include the issuance of debt. Now, money in modern economies is largely constituted by private debts issued by banks (in the form of demand deposits). Therefore, if liquidity preference is capable of explaining balance sheet decisions of private agents it should also explain how money is created by banks.<sup>19</sup>

Portfolio choices by banks are oriented by the need to combine profitability and liquidity. It is from their choices as to which assets to buy and liabilities to issue that ultimately the supply of money results. In particular, money comes into existence when banks create deposits that are issued to allow them to buy assets from the public, in the occasion, for instance, of providing a loan. In other words, money is created and made available to nonbank agents as a result of portfolio decisions of banks. The responsiveness of banks to demands from the public depends on the preferences that orient those portfolio decisions.

Banks are intrinsically speculative agents since their assets are typically less liquid than their liabilities. They actually profit from the difference between rates that are paid on their assets and liabilities that reflect the different liquidity premia associated

<sup>19</sup> defended by Bresser Pereira and Nakano (1987) and, more recently, by Costa (1994).

<sup>19</sup> In recent years. Dost Keynesian modeling of bank behavior has become a growing industry.

to each component of their balance sheets. It is by exploring profitability/liquidity trade-offs that the overall profitability of the banking business is established. The availability of means of payment is decided as a by-product of these choices. Banks can direct their resources to the financial circulation (when they buy, for instance, government bonds and/or bills) or to the industrial circulation (if they finance the working capital of firms). Therefore, depending on the choices made by banks not only the money supply can vary but also the relation between the availability of money and aggregate demand can be different, since, as seen above, industrial and financial circulations have different connections with the flow of income.

The crucial point is that the most profitable placements for banks are seldom the safer or the more liquid. If uncertainty is high, banks may prefer the liquidity of excess reserves or, most probably, the purchase of government securities rather than running the risks of buying potentially more profitable but also riskier private liabilities. On the other hand, if there are perceived opportunities of profitable investment, banks can, through liability management methods, bring money from the financial to the industrial circulation, to the point of defeating monetary policies intended to constrain the level of activity. The consideration of liquidity preference on the part of banks certainly imparts a feature of endogeneity to the money supply, although one could hardly argue that it makes the supply of money horizontal in the interest/money space. In particular, the Keynesian argument is that there is a larger degree of elasticity in the monetary system than is usually supposed because of possible changes in the relation between financial and industrial circulations, that have, as we saw, expansive or contractionary impacts on the economy. What the approach really suggests is that the very dichotomy between money demand and supply may be too narrow. It is much the same fundamental factor that is in operation in both sides of the market: liquidity preference, that orients the non-bank

public in their planned purchases of assets and also orients banks as how to utilize their money-creation facilities. As liquidity preference is heavily influenced by expectations and the state of confidence, one would expect that factors that originate optimistic expectations in the non-bank public would also do it for banks. This possible coincidence of motives led Robinson to state that:

“... the supply of finance cannot be regarded as a rigid bottleneck limiting the rate of investment, but must be treated rather as an element in the general atmosphere encouraging or retarding accumulation.” (Robinson, 1979, p. 21)<sup>20</sup>

## 5. Liquidity Preference and Inflationary Environments

Production in monetary economies is organized on the basis of a system of forward contracts that allow entrepreneurs to reduce, at least in part, the uncertainties that plague the future. The role of contracts is to assure the entrepreneur that labor and other inputs necessary for the continuity of the productive activity will be available at the required rates and at prices that justify the decision to produce, oriented by the expectation of profits from the sale of goods in the markets. The existence of a widespread system of contracts, as argued before, serves to anchor the expectations as to the future value of money and to sustain the calculation of prospective advantages that is characteristic of capitalistic production.

The importance of contracts for Keynes and post Keynesian economics can hardly be exaggerated. As Keynes wrote:

“The introduction of a money, in terms of which loans and contracts with a time element can be expressed, is what really

<sup>20</sup> One should realize that a system with this characteristic tends to be very unstable if other components are absent to act in an opposite way.

changes the economic status of a primitive society.” (CWJMK, XXVIII, p. 255)

The strategic role of contracts gives us the point from which to start when thinking about money:

“Now for most important social and economic purposes what matters is the money-of-account; for it is the money-of-account which is the subject of contract and of customary obligation.” (CWJMK, XXVIII, p. 253)

Finally, Keynes could not be more explicit as to the importance of a convention of stability, the generalized belief in the stability of the purchasing power of money in the nineteenth century, for the development of the financial relations that allowed capitalism to grow (CWJMK, IV).<sup>21</sup>

A post Keynesian approach to inflation, and, in particular, to persistently high inflation, has to start from its effects on the system of contracts, on the definition of the money-of-account and on the implications of these effects on the liquidity preferences of the public.

Inflation erodes the purchasing power of money between two points in time. If a convention of stability survives this erosion, it will be seen as a random occurrence not affecting bona fide contracts. After all, the parties to a contract know that they cannot control all elements influencing the outcome of a given process unfolding overtime. Unexpected events, “acts of God”, can always happen, disappointing one or both parties. Contracts are defenses against predictable developments. In a stable-price economy, inflation would be something like a natural accident. It can disappoint expectations in the same sense that other uncontrollable and unpredictable events may. If inflation is not seen as a systematic force operating in the environment it will

<sup>21</sup> Weintraub echoes most of these concerns in his writings. See, e.g., Weintraub (1978).



probably be ignored by the parties when defining a contract. Society has so much to gain from the existence of a system of forward money-contracts that eventual losses, even if heavy at times, do not lead agents to entertain doubts as to the convenience of its maintenance. The money-of-account remains the same and the liquidity properties of the legal tender and its closest substitutes are preserved.

Persistent creeping inflation changes the situation but not in an essential way. Systematic but low inflation is a nuisance to contracting parties, obliging them to take special precautions but it still does not change the relation between the money-of-account and money proper, that is, the means of payment. Contracts are still made in terms of money, even if now the parties try to anticipate the erosion that is expected to take place until the settling date. The liquidity properties of money are at least partially retained since the essence of moneyness, as we saw, is conferred by the function of money-of-account that, in these circumstances, is still performed by money.<sup>22</sup>

An essential change takes place when inflation is persistent and high and the potential losses from mistaken expectations as to the future course of prices makes it too risky to accept contracts denominated in money. Agents will then search for alternative monies-of-account which may be either a foreign money, such as the US dollar, or other units of account, indexing contracts to price indices that represent baskets of goods that are meaningful to one or both of the contracting parties. This author has examined elsewhere the operation of a monetary economy under hyperinflation or in a high inflation regime (Carvalho, 1991; 1993). For the purposes of this paper, what is important to stress

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22 Actually money tends to lose some of its liquidity premium rather because financial institutions and banks try to introduce financial innovations that will attract wealth holders to strengthen their competitive position. Since the bait offered by these new financial instruments is some hedge against inflation, interest rates tend to rise, although not necessarily

is that in these cases money loses practically all its liquidity premium. Now to hold money is no longer to have the asset in terms of which debts are denominated. Money has to be converted into the unit of contracts and this exchange rate is as uncertain in advance as any other in the economy. Everybody may expect that the purchasing power of money will fall but the possibility of wrongly anticipating by how much it will be depreciated involves the risk of heavy losses if one tries to hold money.

Under highly inflationary regimes either financial innovations are created, particularly assets that are denominated in the same unit as contracts are made, or a flight into goods and foreign assets will be unavoidable. Liquidity preference does not disappear with high inflation but it does change the public's views as to what may constitute an adequate liquidity time-machine, to use Davidson's expression. A very unstable system may emerge as the public and banks and financial institutions adapt themselves to the existence of multiple units of account.

## 6. Liquidity Preference in an Open Economy: Some Provisional Remarks

No fundamental theoretical difficulties should be met when generalizing liquidity preference theory to open economies even though the model has been traditionally built under closed economy conditions. In fact, as Kregel (1984) has demonstrated, Keynes's model of ownrates of interest was derived of his previous attempts to build a interest-parity theory of exchange rates.

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as much as inflation itself. Keynes's criticisms of the Fisher theory of nominal interest rates as well as Davidson's discussion of the most recent versions of that theory assume a situation where no such policies are implemented and no choices are offered to wealth holders. See Keynes (1964, p. 142); Davidson (1981).

Nevertheless, the properties of open economies have not been a favorite theme for most post Keynesians, although exceptions can be identified.<sup>23</sup> The increasing globalization of monetary and financial operations requires, however, the transcendence of closed-economy models towards the consideration of a global, more or less integrated environment.

To deal with an open economy, the model has to be amended in two main ways: first, one has to allow for the existence of different exchange rate regimes, that affect directly the liquidity properties of assets denominated in the several monies and, thus, their prices; secondly, one can no longer restrict the relevant amounts of assets and money to what is available or can be created within the borders of a given country. Monetary and financial resources can now travel very fast and with much more freedom than was the case a few years ago. This is not the result of purely regulatory changes, but it is also caused by technological changes that dramatically changed the relationship between the national financial markets.

It is usually agreed that if one has absolutely fixed exchange rates and complete resource mobility, models for closed economies would be equally valid for the open economy. In fact, the world would be just one large country in what relates to monetary and financial matters. Liquidity preference theory would not have to be adapted to these conditions. If mobility is imperfect, balance of payments problems could emerge that could have two possible consequences: the amount of money issued in a given country of and non-monetary financial assets denominated in that currency could be rationed, the exchange rate might have to be changed in some future date. Thus, liquidity problems could generate uncertainties as to the sustainability of a given exchange rate and, as a consequence, as to the values of assets denominated in that currency.

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23 Most notably Davidson (1982).

The equivalence of closed economies and open economies with fixed exchange rates is conditional either on the perfect mobility of resources or, much more realistically, on the existence of institutions that are able to manage the supply of exchange in order to avoid pressures on the exchange rates.

It is also usually agreed that perfectly floating exchange rates are capable of isolating a given country from the international money circuits. The cost of such option, however, is the increased degree of uncertainty it represents to private agents that enter into contracts with foreign partners, be they related to production or to the financial circulation. The same reasons that justify the existence of contracts with stably-valued monies-of-account are valid for international transactions. Floating rates force agents from different countries to accept claims and obligations the real content of which is basically unpredictable in advance. It is not much different from accepting domestic obligations the burden of which can only be known after the deal is made. Liquidity problems are, again, very likely to arise in these circumstances.

Keynes had always associated himself to movements of reform of the international monetary system that intended to manage monetary and financial relations in such a way as to minimize both types of shortcomings. In particular, his *bancor plan*<sup>24</sup> tried to combine fixed exchange rates with institutions that would manage international liquidity and incentives against hoarding of reserves on the part of nations with surpluses in their external operations, that would have the same deflationary effect as an increase in money retention domestically. Modern Keynesians have still to get hold of the subject to update the model and the policy prescriptions.

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24 To know Keynes's last proposal of international monetary reform, presented (and defeated) at the Bretton Woods conference of 1944, see CWJMK XXV. To follow the negotiations that led to the acceptance of the White Plan, see CWJMK XXVI.

## VI. Conclusion

The aim of this paper was to present the liquidity preference theory as a unifying principle for Keynes's and post Keynesian macroeconomics, rather than just a theory of supply and demand for money.

Liquidity preference was originally presented as a theory of the interest rate, since it was developed in *The General Theory* in a framework in which only two composite assets, money and bonds, were considered. Posterior developments, mainly due to Kaldor, Robinson and Kahn showed that the scheme could be easily generalized to the determination of the structure of interest rates, by altering the degree of aggregation considered in the model. Minsky advanced one step further by showing that the scheme could be used to explain not only the prices of assets but actually the balance sheet choices as a whole, including assets and liabilities. Davidson showed that capital investment could also be a result of the choice of assets by private agents.

Since most of what exists as money in modern economies is created by banks, we showed that the behavior of the money supply can be approached according to the same principles that explain the behavior of the general public. In opposition to more naive approaches that offer extreme postulates as to the interest-elasticity of the money supply curve, we can show that money is at least partially endogenous because it is created as part of banks' strategies to interact with their environment.

Finally, we dealt with research subjects that are still in their first steps, that is how persistently high inflation changes the liquidity attributes of assets and of money in particular and how to deal with open economies. Post Keynesian theory is specially well-equipped to study these issues given the role it gives to forward contracts denominated in money in the organization of the economy and the definition of the forms of wealth available for private accumulation.

Important subjects still remain to be developed. Open economy models of liquidity preference with the same degree of elaboration that has been dedicated to closed economy models, taking into consideration the dramatic changes that are occurring in the international financial and monetary markets are still to be formulated. The implications of these propositions with respect to asset pricing for theories of capital accumulation, in particular to the financial support of long-term accumulation are not yet clearly formulated, especially when one, again, remembers the important technical and institutional changes that are taking place in financial markets. Finally, monetary policy prescriptions have to be made explicit from these models that obviously refuse the axiom of money neutrality characteristic of neoclassical theories.

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