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# TEXTO PARA DISCUSSÃO

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rediscovery of Keynes's  
finance motive and the  
liquidity preference versus  
loanable funds debate**

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## Paul Davidson's Rediscovery of Keynes's Finance Motive and the Liquidity Preference Versus Loanable Funds Debate

### 1. Introduction

To be published in P. Arestis (ed), *Keynes, Money and Exchange Rates: Essays in Honour of Paul Davidson*, Aldershot: Edward Elgar.

A paradoxical destiny was suffered by the debates that followed the publication of *The General Theory* in the late thirties. Even though no one would dispute that *The General Theory* was to become one of the most influential books in the history of economic thought, the discussions between Keynes and his critics that were meant to enlighten the public as to the meaning of the novel concepts and models Keynes was offering in that work were largely ignored and/or forgotten, even by most (at least nominally) Keynesians.<sup>1</sup> A case in point is Keynes's 1937 paper on "The General Theory of Employment", where his approach to uncertainty, as opposed to calculable risk, was explained and its consequences explored, the existence of which was never acknowledged by mainstream Keynesians.<sup>2</sup>

Keynes's debate with Bertil Ohlin in the pages of *The Economic Journal* on the determination of interest rates had a slightly brighter fate, but the attention it has attracted has been far

1. Mainstream Keynesians seem to have never felt completely at ease with the school label. Modigliani, in his debate with monetarists, preferred to be called "non-monetarist" rather than Keynesian (Modigliani, 1977). Tobin was "proud" to be Keynesian (Tobin, 1987). New Keynesians are not so sure. As Mankiw put it: "If new Keynesian economics is not a true representation of Keynes's views, then so much the worst for Keynes", quoted in Davidson (1994), p. 299.

2. Again, among mainstream Keynesians, Tobin seems to be an exception. See Tobin's interview in Blaug (1990).



less than one would expect given the importance economists have assigned to its central theme, the determination of the interest rate. In this exchange, Keynes developed the approach presented in *The General Theory* according to which *the* interest rate is determined by the interplay of the demand for and supply of *money*, while Ohlin presented his Wicksellian view that the interest rate is determined in the *credit* market. The opposition between the two theories had ultimately to do with their diverging views of the role savings and investment play in each model, and, thus, related directly to the validity of Keynes's principle of effective demand.

In part, this debate fell into oblivion because the dominant view among macroeconomists, inspired by Hicks, came to be that there is no essential difference between the theories. It became accepted that liquidity preference and loanable funds were not really contrasting theories but actually complementary approaches to the determination of the interest rate. It was alleged that the Marshallian framework within which these theories had been formulated by early macroeconomists prevented them from seeing that general equilibrium required the joint consideration of money *and* credit markets in the determination of all prices, including the interest rate.<sup>3</sup>

Not all economists, however, shared the view that nothing of substance was being disputed in the liquidity preference versus loanable funds debate. The bland phrasing of the consensus argument should be replaced by the harsh words of those who considered this choice to depend on fundamental aspects of theory. For Leijonhufvud, for instance:

"Unlike the Cambridge Keynesians, I do not accept the Liquidity Preference theory of interest of Keynes's *General Theory* or any of the "lemmas" that flow from it. *I believe it to be*

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3. The complementarity thesis goes back a long way. See, e.g., Lerner (1947), Modigliani (1944).

*theoretically unsound, empirically false, and practically dangerous.*" (Leijonhufvud, 1981, p. 195, my emphases)<sup>4</sup>

Paul Davidson also considered the points raised in the Keynes/Ohlin debate to be of central importance:

"The Keynesian Revolution was aborted by those who claimed to be Keynesians but who disregarded Keynes's *Treatise on Money* and his finance motive revision." (Davidson, 1994, p. 110)<sup>5</sup>

The arguments developed by Keynes, Ohlin, Robertson and others that took part in the debate are at first sight, difficult to evaluate. Most of the time the participants seem to be talking at cross purposes. After reading the whole set of papers, one is left with the impression that the most heated disputes were mostly due to a mutual lack of understanding as to what each author meant when creating concepts and advancing theoretical propositions. Most of the time, we see an author indicting his opponent for not being able to reach conclusions that in fact were implied in the way the first discussant defined a given concept but were foreign to the way his opponent viewed it. When the discussants fail to agree, they attribute the remaining dispute to each other's faulty logic instead of acknowledging that they often use the same words to refer to very distinct phenomena.<sup>6</sup> In fact, there are at least three different themes under discussion that the authors allow to get entangled: the

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4. Elsewhere in the same work, Leijonhufvud stated that liquidity preference was "historically important" because "many of the weaknesses of "Keynesian economics" really stem from it." (Leijonhufvud, 1981, p. 134n)

5. Because of their disregard of the finance motive introduced by Keynes in his debate with Ohlin, "mainstream Keynesians [were encouraged] to develop a bastard Keynesian model that was a perversion of Keynes's own system." (Davidson, 1994, p. 122)

6 A clear example is Keynes's and Robertson's different meanings attributed to the concept of liquidity. Both authors insist in trying to make each other to admit implications that are foreign to what each of them takes liquidity to be, although Keynes, at least seemed to be conscious of Robertson's particular use of the term (Keynes, 1973, p. 230).



macroeconomic roles played by saving and investment; the determination of the interest rate; the foundation of a financial theory of capital accumulation, that is, the definition of financial preconditions for economic growth (Carvalho, 1994). These are interrelated but essentially diverse issues, the degree of separability between them depending on which particular macroeconomic theory is accepted. Besides, the boundaries between a monetary theory of interest and a credit theory of interest may be obscure when money is mostly created by banks as a result of supplying credit. This feature of modern bank-money economies may have led many economists to assume that differences between the two theories of interest became irrelevant in modern times, if they ever were meaningful.<sup>7</sup>

Among his many important contributions to the development of macroeconomic theory in a post Keynesian perspective, Paul Davidson's rediscovery and interpretation of the arguments involved in the Keynes/Ohlin debate certainly stand out. Carefully separating the issues involved, Davidson was able to significantly contribute to the clarification of the concepts proposed by Keynes and to their development. In this paper, we try to identify the most important of these contributions. In section 2, we make a very brief sketch of the original debate between Keynes and Ohlin, emphasizing the development of concepts and models originally presented in *The General Theory*. Section 3 is then dedicated to a presentation of Davidson's interpretation and further exploration of the novel concepts offered by Keynes and point to new lines of research inspired by these studies. A summary concludes the paper.

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7. Some Keynesians now adopt loanable funds theory without even mentioning there may be some contradiction between this approach and Keynes's liquidity preference theory. See, e.g., Blinder (1989).

## 2. Keynes's defence of the liquidity preference theory of the interest rate

A key element of Keynes's macroeconomics is the rejection of the assertion that *the* interest rate<sup>8</sup> is the element that brings saving and investment into equality. According to Keynes, there was no direct, unambiguous relation between the act of saving and the interest rate. A distinction was proposed between an agent's *time preference*, that explained choices between consumption and saving, and his/her *liquidity preference*, that had to do with choices as to the form in which wealth should be accumulated. The decision whether to direct income to immediate consumption or to put it aside in the present to finance an act of consumption in an indefinite date in the future depended, according to Keynes, mainly on the agent's income. The decision to save in an uncertain world generally obeys a precautionary motive to reserve some of one's present income to guarantee that consumption standards will be preserved in the event of adverse developments taking place. Saving is not the placement of a definite order for future goods, but the demand for wealth as such, that can be used if and when the occasion requires it.<sup>9</sup> An individual making this kind of choice naturally turns to liquid forms of wealth, monetary assets, that mostly represent wealth as such,

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8. *The* interest rate should be understood as an index of interest rates, a price index, not as any particular rate. In *The General Theory* model there is only one non-monetary financial asset (bonds). The interest rate refers to this aggregate. As will be argued below, if this choice as to aggregation was useful in *The General Theory* to present the principle of effective demand, its usefulness is much less visible in models that explicitly acknowledge more disaggregated choices as to financial assets.

9. "An act of individual saving means - so to speak - a decision not to have dinner today. But it does not necessitate a decision to have dinner or to buy a pair of boots a week hence or to consume any specified thing at any specified date. ... It is not a substitution of future consumption-demand for present consumption-demand, - it is a net diminution of such demand." (Keynes, 1964, p. 210)



that is, wealth in a general form, as Marx put it.<sup>10</sup> To part with the safety that keeping liquid wealth gives to its possessor it is necessary to pay him/her for the risk he/she is going to accept. According to Keynes, it is here that interest comes to the picture:

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

The interest rate (or the price of securities) is, thus, the variable that reconciles the demand for liquid assets with their availability.<sup>11</sup>

Keynes went on to argue that choices between the various forms of wealth should be only marginally affected by new income flows, and, therefore, by the flows of new savings and investment. Demands for the available classes of assets were influenced by their liquidity premia, expected returns, carrying costs and expected capital appreciation (or depreciation). These characteristics attached to the existing *stocks* of each given class of asset, not just to their newly available flows. The interest rate, therefore, was determined not by the need to allocate the saving *flow* between money and bonds (the only non-monetary asset in *The General Theory* model), but to allocate the value of wealth among the existing *stocks* of money and bonds. *The interest rate should be determined in a stock equilibrium model, not a flow equilibrium model.* As argued above, it performs the role of changing the price of the non-monetary asset in such a way as to induce the wealth-holders to keep in their portfolio the exiting stocks of money and bonds.<sup>12</sup>

10. Money becomes a “liquidity time-machine” in Davidson’s expression. E.g., Davidson (1994), pp. 114 ss.

11. “It is the ‘price’ which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash.” (Keynes, 1964, p. 167). To put it another way: “The function of the rate of interest is to modify the money-prices of other capital assets in such a way as to equalise the attraction of holding them and of holding cash.” (Keynes, 1937, p. 250).

12. See also Kregel (1985).

Taking the interest rate to be the reward for parting with liquidity, and having money as the only liquid asset in *The General Theory*, Keynes then analysed the motives to demand money. He identified three such motives: to pay for planned transactions, to keep as a precaution against an uncertain future, and to speculate over the future behavior of the price of bonds. The transactions demand was proposed as proportional to income, the speculative demand depended on the expected behavior of the interest rate, and the precautionary demand was suggested, without much reflection, also to be proportional to income.<sup>13</sup>

Ohlin, in his critical examination of *The General Theory*, agreed that the interest rate was not determined by investment and saving, arguing that Keynes had shown them to be always equal to one another, but did not accept that the proposition that it was explained by the supply and demand for *money*. Rather, he argued, the interest rate is determined by the supply and demand for credit. The credit market could be conceived as *gross* and *net*, depending on whether one was considering only the *flow* demand and supply or the *stock* demand and supply for credit.<sup>14</sup> The result would, in any case, be the same (Ohlin, 1937, p. 225). Be it as it may, it was not the demand and supply of money as such that counted, but of credit, a larger concept.<sup>15</sup>

Keynes rejected Ohlin’s approach, arguing that all it did was to reintroduce investment and saving through the back door to determine the interest rate. In his view, Ohlin defined the supply of credit in such a way as to make it equal to saving and the demand for credit as equal to investment so the credit market would be in

13. A very unfortunate step according to Kahn. See Kahn 1954.

14. “What governs the demand and supply of credit? Two ways of reasoning are possible. One is *net* and deals only with *new* credit, and the other is *gross* and includes the outstanding *old* credits.” (Ohlin, 1937, p. 224, his emphases)

15. “The ‘market’ for cash has no key position in relation to other markets.” (Ohlin, 1937, pp. 225/6)



equilibrium ultimately when investment equaled savings. In fact, Ohlin accepted Keynes's equality between investment and saving as a tautology. In his view, what really mattered was that the *propensity to save* and the *propensity to invest* are different phenomena. These propensities were the ultimate determinants of the supply and demand for credit and, thus, of the interest rate. (e.g., Ohlin, 1937b, pp. 426/7)

Although rejecting Ohlin's approach, Keynes conceded anyhow that there was an important *qualification* to be made to his liquidity preference model related to investment. The demand for money to pay for projected investments did not fit well in any of the three motives to demand money described in *The General Theory*. When an investment plan was decided upon money was demanded to cover the interregnum "between the date when the entrepreneur arranges his finance and the date when he actually makes his investment" (Keynes, 1937b, p. 665). Although it consisted in a demand for money to buy capital goods, like the transactions demand, it was much less stable than the latter, related to investment plans adopted because of expectations of *future* profits, rather than to *current* income. The *finance motive to demand money*, in fact, applied to discretionary spending in general, not only to investment expenditures. Given the less stable nature of these demands, the finance motive would not share the *routine* character of the standard transactions demand for money. As Davidson would put later, this new reason to demand money should be more fruitfully viewed as a *shift factor* than as one of the endogenous variables in a money demand model (Davidson, 1994, p. 126).<sup>16</sup>

The addition of the finance motive to the liquidity preference model led Keynes to argue that an *increase* in investments above the

16. "Investment finance in this sense is, of course, only a special case of the finance required by any productive process; but since it is subject to fluctuations of its own, I should ... have done well to have emphasized it when I analysed the various sources of the demand for money." (Keynes, 1937a, p. 247)

customary level would cause, *ceteris paribus*, the interest rate to rise, not because of the necessary stimulus to consumers to save more in order to finance the investment, but because the demand for money would rise above the existing supply. The pressure on the interest rate was not to be alleviated by an increase in thrift, but by an increase in the money supply. As Keynes put it:

"[t]he ex-ante saver has no cash, but it is cash which the ex-ante investor requires ... For finance ... employs no savings." (Keynes, 1937b, pp. 665/6)

It is not, thus, a problem of abstention but of liquidity. Keynes went further. He argued that the problem related to money, not to income. That the pressure on the interest rates would take place in advance of the investment expenditure (and therefore of income, and savings, creation) because money would be taken out of circulation to pay for the planned purchases when the time came. When the investment was finally spent, money would be released making it possible for the next investor to get hold of money to spend it buying capital goods in a future date (cf. Keynes, 1937a, p. 247). If the rate of investment was constant, this pool of money would act as a revolving fund in which the liquidity released by a spender would now be available to be held by another prospective spender. It was only if the rate of investment was accelerating that a liquidity problem would arise because the money spent by one investor would be less than what was needed by the next investor in line.

Ohlin, as Robertson and others, reacted very negatively to this line of argument. From this point on, the whole debate got entangled in a game of words that meant very different things for each of the discussants. Robertson took the finance motive to refer to the set of liabilities issued by the prospective investor and argued that no one would be liquid by spending the money they borrowed but by being able to pay one's debts. Robertson, thus, took liquidity to mean that the balance sheet of the investor (and of banks) is in equilibrium in terms of the liabilities issued and the assets bought. Keynes replied that liquidity was released when spending took place



because money held in advance of spending was now back into circulation. Liquidity in this sense has to do with supply and demand for money. None of the disputing sides to this argument seemed to recognize that they were talking at cross purposes. In fact, under the pressure of the critics, mystified by the use of the term *finance* to mean a kind of *money demand*, instead of the more familiar meaning of issuing liabilities, Keynes made a difference between *finance*, the creation of money, and *funding*, the posterior allocation of savings that permitted investors to improve their balance sheet situation. Now *finance* and *funding* had a meaning closer to Robertson's concerns, but its relation to the *finance* motive to demand money remained unclear, as well as the ideas on the revolving fund and the restoration of liquidity through spending, ideas which, in any case, Keynes refused to recant.

The debate ended in a conceptual mess, more from exhaustion than from enlightenment. Keynes clearly lost it in the sense that the majority of the economists, then and afterwards, seemed unable to understand his ideas, and retreated to the much more familiar, classically-rooted, loanable funds model proposed by Ohlin and Robertson. Mostly, the debate was buried and forgotten by the mainstream. For those who remained faithful to Keynes, and to liquidity preference theory, however, important lessons were to be learned from Keynes's attempts to respond to his critics. Among these, Paul Davidson was certainly a pioneer.

### 3. Paul Davidson's contributions

Loanable funds theorists commemorated Keynes's identification of a *finance* motive to demand money, related to investment plans, as a retreat from the view presented in *The General Theory* that the interest rate was a monetary variable, having nothing to do with the interplay between investment and saving. For some, although Keynes had insisted that saving still had no influence on the determination of the interest rate, to acknowledge

that investment was one of its determining elements was a sign that liquidity preference was theoretically fragile. The refusal to accept that savings was also one of the determinants of the interest rate should be explained mostly by Keynes's idiosyncrasies than by theoretical rigour.

These theorists may have been misled by the use of the term *finance* to denominate this new motive. The term is suggestive of a demand for credit rather than for money and Keynes's own attempt to distinguish between *finance* (but not the *finance motive*) and *funding* later in the same debate may have strengthened this intuitive meaning of the word. These two points, however, should be kept analytically separated, as we argued above. One relates to the need, in a monetary economy, any buyer has to get hold of a given amount of money to be able to acquire goods in advance of the purchase itself.<sup>17</sup> The other has to do with the relationship between assets and liabilities in the balance sheet of the buyer (and its bank). The central point of liquidity preference theory as an element of Keynes's principle of effective demand is that although they are two different (though related) processes, *none of them requires a previous availability of savings or even plans by consumers to save in the future*. According to the principle of effective demand, savings *result* from investment spending. An investor does not need savings to buy capital goods, he needs money. Money is created by the monetary authorities or by banks, when creating deposits. To satisfy the *finance* demand for money, banks have to be ready and willing to create deposits and the monetary authority to create reserves. It is the policy of the authorities and the liquidity preference of banks themselves that matter. Banks create deposits as they offer credit, so the creation of *finance* to trigger the investment process depends on the liquidity preference of banks as well, the willingness to issue

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17. In this sense, it is a demand for money. To obtain through credit operations does not change the fact that someone must be supplying the buyer the money he needs to make the purchase effective.



their own (fully) liquid deposit liabilities in exchange for the less liquid debts issued by the prospective investor. Once the investment is made, income will be generated in the capital goods sector and demand will spread to the consumption goods sector to serve the demands of those who produce capital goods. This is the multiplier proposed by Keynes and its end-result is that consumers will have an additional amount of savings in their hands precisely of the same value of the investment originally made. Ideally, although it is unlikely that things happen this way, these savings would be used to fund the investor's debt, allowing him to settle his short-term debt with the banks that offered him finance at the beginning. Keynes's meaning of liquidity in this debate referred to banks' willingness to satisfy the finance demand for money. Robertson's concept of liquidity referred to the possibility of funding the investor's debt allowing them to repay their debts to the banks. These are different issues, but Keynes's point is that savings are the starting point of neither the money market problem nor the financial one.

One could say, then, that the central point opposing liquidity preference to loanable funds theorists is the role played by the banking system in modern economies. For Keynes, the banking system (including the monetary authority) is the creator of money, and money is what it takes for an investment plan to be implemented. "This means that, in general, the banks hold the key position in the transition from a lower to a higher scale of activity" (Keynes, 1937b, p. 668). Loanable funds theorists, in contrast, banks are essentially intermediaries between savers and investors. Institutional characteristics, such as the fractional reserve system give banks some latitude of choices, but their functions are ultimately limited to transfer real resources from savers to investors in the amounts the two groups agree about. As a consequence, Keynes believed that interest rates had to reconcile banking policy with the preference of the public for monetary assets. Loanable funds theorists believe the interest rate to reconcile the intertemporal preferences of the public with the technical possibilities open to investors.

These problems were first considered by Paul Davidson in the mid-60s and have consistently been a concern of his from then up to his most recent book. Davidson's starting point is precisely the distinction between the money market discussion and the distinction between finance and funding.

According to Davidson, the finance motive allows to connect the monetary analysis of the *Treatise on Money* to the principle of effective demand of *The General Theory*. Davidson criticizes Keynes for having yielded, in the latter, to mechanistic models of monetary analysis, when proposing a transactions demand for money by households functionally related to aggregate income. In the *Treatise*, in contrast, Keynes related the demand for money to *planned* expenditures by households *and* firms, rather than to equilibrium incomes, giving a behavioral content to the transactions demand for money that was lost in the mechanistic approach. For Davidson, the finance motive recuperates the behavioral basis of the transactions demand for money. Money is demanded in advance of *planned* spending both of consumption and of investment. What differentiates them is the alleged routine character of households' consumption expenditures as opposed to the volatility of investment spending. The finance demand for money, thus, is a kind of transactions demand, since it refers to the need to get hold of money in advance of a purchase operation. But while the latter category would be applied to routine expenditures, assumed to be stably related to current income, the finance demand should be defined in terms of discretionary spending, that has no necessary relation to it. In these terms, the finance demand would explain *shifts* in the total demand for money as described by the three motives mentioned in *The General Theory*.

Alternatively, one could consider an enlarged transactions demand for money function, encompassing both the finance and the transactions motives, as Davidson proposes in equation (4) below.

The consideration of the finance motive would illustrate Keynes's argument that in monetary economies one cannot separate



real from monetary variables. In fact, while in the traditional formulation the transactions demand for money would be represented by

$$(1) \quad L = kY$$

the transaction plus finance demand would consider planned consumption and investment. Let us assume consumption (C) to be related to income (Y) and investment (I) to interest rates (i) according to the following functions (a,b,c,d being parameters)

$$(2) \quad C = a + bY$$

$$(3) \quad I = c - di$$

Then, the demand for money comprising both the transactions and the finance motive would be given as:

$$(4) \quad L = xC + yI = xa + yc + xbY - ydi \quad 18$$

with x and y being parameters of the money demand function. As a consequence, if planned investment was to increase, money demand would also increase and, if this increase was not accommodated by the banks and the monetary authority, interest rates would increase. On the other hand, if the monetary authority and banks decided to accommodate the additional demand, money would be endogenous and the interest rate would stay put.<sup>19</sup>

Davidson stresses three important features of this model. On the one hand, it shows a crucial element of Keynes's economics, that is the integration between monetary and real variables, in the sense that shifts in the demand for goods result in shifts in the demand for

money. Secondly, it shows the conditions in which a *crowding out* effect may emerge but it also shows that the latter is a consequence of a *lack of money*, not a *lack of savings*.<sup>20</sup> It is liquidity preference, not thrift that is at the root of the problem. Finally, it also refines the analysis of the influences to which the money demand function is subject, overcoming the mechanistic approach inspired by its treatment in *The General Theory*. The function is sensitive to changes in expectations (that control investment and consumption expenditures), income distribution, taxation, etc. An important corollary is that investment *does* have some influence on the interest rate but this does not mean any overture to the loanable funds model, because pressure caused by increasing investments (or increasing autonomous consumption or public spending for that matter) concentrates on the demand for money and is alleviated by changes in the supply of money and not by increasing thrift that do not necessarily affect either the liquidity preference of banks or the policy of the monetary authorities.

As to the distinction between finance and funding, again Davidson's point is that what is needed to initiate an investment process is the availability of money, not of savings. Money is needed either because the investor needs to get hold of liquid means of purchase in advance of the act of spending<sup>21</sup> or because money is necessary to allow the firms producing capital goods to buy labor services and means of production to attend to the investors' demand.

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20. In one of Davidson's favorite quotations from Keynes's works: "The investment market can become congested through shortage of cash. It can never become congested through shortage of saving. This is the most fundamental of my conclusions within this field." (Keynes, 1937b, p. 669)

21. Davidson's definition of the finance motive: "... entrepreneurs typically hold some cash balances between payments periods to assure themselves that when they enter into forward contracts for the purchase of capital goods that will be produced during the period, they will be able to meet these obligations." (Davidson, 1978, p. 164).

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18. Cf. Davidson (1978), pp. 160/170.

19. Cf. Davidson (1978), pp. 178/9 and (1994), pp. 128/9.



These are the roles of *finance*, as opposed to *funding* the short-term debts generated in the process of investment through the creation of long-term credit or equivalent (cf. Davidson, 1986).

Finance is supplied when someone retaining liquid assets (or with the possibility of creating money) accepts to become less liquid, exchanging them for relatively illiquid assets. This is, again, a question of liquidity preference, not of thrift. Less obviously, however, funding is also basically a question of liquidity preference. According to Keynes's principle of effective demand, there will always be an aggregate amount of savings generated in an economy equal in value to the investments realized, no matter how thrifty consumers are. Through the multiplier analysis, Keynes showed that consumers will eventually hold an amount of voluntary savings in their hands that is equal to the investment value spent by firms. Problems can never arise because savings are insufficient, but because consumers may decide to keep those savings in forms that are incompatible with the funding needs of firms. In other words, savers's liquidity preference may be incompatible with the demands for long-term credit from firms. As a result, investors will either have to become speculators in the sense of Minsky, accepting liabilities that are shorter than their assets, or will have to pay high interest rates in order to induce savers to part with liquidity.

Davidson discussed this problem in the context of Kaldor/Pasinetti growth model by creating a variable to represent the savers' *propensity to buy bonds out of savings*, which is, of course, dependent on the agents' liquidity preference.<sup>22</sup> This variable was then used to criticize the non-monetary character of those models.

There is, in fact, a third way out of that dilemma. It is the development of financial institutions the role of which is to *transform* assets. They may pool risks and information being able to supply liquid assets to savers at the same time they offer better credit terms to investors. Again, the central point is that nothing of this has anything to do with thrift, but with liquidity preference.

22. See Davidson (1978), pp. 299 ss.

#### 4. Concluding Remarks

Paul Davidson has contributed to explore the financial and monetary theory of investment required by Keynes's principle of effective demand. He was able to disentangle the threads of the Keynes versus Ohlin/Robertson debate of the late thirties, showing that its central issue is the role of liquidity preference and the policy of the banking system as opposed to thrift in the determination of the interest rate, defended by Keynes against the classical theory. Some important difficulties remain, however, to be tackled.

As the creation of money in modern economies involves the issuance of debt to be bought by banks, the determination of the interest rate, in fact, as shown in that debate, has to consider three different models: first, there is determination of a *stock-equilibrium* between the supply and demand for money, opposing those with various spending plans to the creators of money, banks and the monetary authority; then we have to consider the multiplier, through which a *flow-equilibrium* is reached in the goods market; finally, we have the question of funding the debts, in order to achieve a *stock-equilibrium* in the financial market and to close the whole circuit.

The interaction between these models cannot be properly explored, however, within the original terms of the debate. In particular, when finance and funding needs are considered, one can no longer talk in term of *the* interest rate. We have now to disaggregate the credit market into its different segments, into which different agents with different motivations and specific action timing take part. An important element to analyse their operation is precisely the changes in the *structure of interest rates* that take place when an investment process is initiated. Keynes began an analysis of this kind in the *Treatise on Money*, examining the behavior of short and long-term rates of interest and their interrelationships. The development of these insights integrating them into the generalized liquidity preference model outlined here is still to be done.



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