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funds theory*

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SOME OBSERVATIONS ABOUT THE *LOANABLE FUNDS THEORY*

Giancarlo Bertocco

Introduction

The loanable funds theory (hereinafter: LFT) has met a paradoxical fate. Although the fundamental elements of this theory have been accepted by the mainstream monetary theory, few contemporary economists quote it explicitly.¹ An important exception can be found in the text of Woodford (2003) who, starting with the very title, makes an explicit link with Wicksell's work. Woodford (2003, p.25) points out that Wicksell's theory constitutes the theoretical foundation of the strategy adopted in recent years by the central banks of western countries, i.e. pursuing the objective of price stability through a monetary policy rule based on interest rate manoeuvre.² Wicksell defines this rule by introducing the distinction between the rate of interest on money and the natural rate of interest, a distinction which has been accepted by the mainstream monetary theory that has supplanted Keynesian theory. Friedman (1968), for example, uses the distinction between natural rate of interest and market rate of interest to explain what monetary policy can and cannot do. Central banks use the wicksellian distinction to affirm that monetary policy can only influence the short term interest rates while in the long run the interest rates are determined by real factors.³ An explicit reference to the LFT can, moreover, be found in

¹ Well-known monetary theory texts such as McCallum (1989), Mishkin (2001), Champ and Freeman (2001), Walsh (2003) do not contain any mention of either LFT or its most important supporters such as Wicksell, Ohlin, Robertson.

² Another important exception is: Bindseil 2004

³ The European Central Bank for instance states that: "In the long term, real interests rates are determined mainly by real factors, inter alia by the rate of productivity growth and by households' preferences as to whether to spend on consumption sooner rather than later. In the short term, however, real interest rates can be influenced by monetary policy. ...The most intuitive and straightforward determinants of the natural real interest rate are those anchored in households' decisions on their pattern of consumption and saving over time. For example, a decrease in the value households attach to future consumption relative to current consumption... will, other things being equal, encourage households to bring forward consumption and reduce saving. In this situation the equilibrium real interest rate must rise in order to ensure, in the aggregate, that savings remain equal to investment. ... For firms, *fast productivity growth* implies higher returns on physical investment. This stimulates investment demand. To generate sufficient savings to meet this investment demand, the natural real rate of interest rate must rise." (ECB, 2004, pp. 57-58)

the works of the New Keynesians, who set out to re-elaborate the keynesian monetary theory by focusing on the credit market rather than the money market (see for example: Stiglitz and Greenwald 2003).

The objective of this paper is to highlight the limits of the LFT based on the arguments used by Keynes to respond to the criticism levelled by Ohlin and Robertson at the keynesian interest rate theory. I believe that these arguments make it possible to elaborate a keynesian theory of credit that is capable of highlighting aspects of the non-neutrality of money that do not emerge from the *General Theory*, which is focused on the liquidity preference theory. The work is divided into five parts. In the first part the most important aspects of the LFT are described, while in the second one Keynes's criticism of the LFT is set out. The third part critically analyses Tsiang's view that supports the validity of Robertson's position over that of Keynes; the last two sections contain a description of the characteristics of a *monetary economy* elaborated on the basis of Keynes's critique of the LFT.

1. The loanable funds theory: Wicksell, Robertson and Ohlin.

The process of elaboration of the LFT can be divided into three phases. The first one can be located between the end of the nineteenth century and the early years of the twentieth century when Wicksell published some works where he analysed the relation between rate of interest and inflation. The second can be placed in the 1930s when Robertson and Ohlin contrast the LFT with Keynes's monetary theory. The last stage can be found in the second half of the twentieth century when economists such as Tsiang, Leijonhufvud, and Kohn analyse the debate between Keynes and the supporters of the LFT, expressing a substantial preference for this latter theory. In this first part of the paper, the first two phases shall be examined.

Wicksell's objective is to explain the causes of price fluctuations; he maintains that the version of the quantitative theory of money elaborated by Ricardo is perfectly valid if it is applied to an economic system where: "everybody buys and sells for cash and with money on their *own*, that is to say, neither commodity credits nor loans exist." (Wicksell 1898, p. 73). In this system the economic agents must keep holdings of cash in order to be able to carry out their expenditure decisions and these holdings shall be proportional to the total

amount they intend to spend. In an economy of this type exogenous changes of the quantity of money trigger the variations in the price levels described by the quantitative theory of money.⁴ Wicksell holds that this explanation of price fluctuations cannot be applied to an economy in which a fiat money constituted by the bank liabilities is used, as in this case, the spending decisions are carried out by using money created by the banks; the economic operators do not need to keep cash holdings to finance the demand for goods. Money becomes an endogenous variable because whoever desires money to purchase goods will be able to obtain it by getting into debt with the banks; therefore inflation cannot be caused by an exogenous variation in the quantity of money. Wicksell describes the working of a pure credit economy thus:

“If we imagine this system developed everywhere to such perfection as it can be said to have attained already in the big banking centres, by means of cheques and a clearing system, and even somewhat further, then all purchases, and in fact all business transactions, could be effected without material coinage simply by means of entries in the books of the banks. ... Here the quantity theory seems, at least on the surface of it, to have lost every inch of ground, because when ... neither coins nor notes are used in the conduct of business, there is no need for any metallic cash holding,... However much ‘money’ is demanded in the banks, they can pay it out without danger of insolvency, since they do nothing about it, but enter a few figures in their books to represent a loan granted or a deposit withdrawn...” (Wicksell, 1898, pp. 75-76)

In a pure credit economy the price levels do not depend on the gap between money demand and supply but rather on the price of money that is constituted by the rate of interest that must be paid to obtain money.⁵ Wicksell observes that the concepts of ‘high’ and ‘low’ interest rates are not absolute concepts but they must be defined in relation to a term of reference that is constituted by the natural rate of interest. The natural rate of interest is the rate that would be obtained in an economy without banks and without bank

⁴ “If then, to borrow the philosopher Hume’s well-known example, everybody woke up one morning with cash holdings of twice the sum of marks, francs or pounds, all prices would soon be doubled; not that everybody would immediately start offering twice the price for their necessities, but in one way or another they would look for some use of their surplus of cash.” (Wicksell 1898, p. 74)

⁵ “Logically speaking it does not seem possible to give any other answer to our question than the following: assuming a pure credit economy, the exchange value of money and the level of commodity prices must depend on the price at which ‘money’ (i.e. in this case credit) itself can be obtained, in other words on *the rate of interest on money*. A low rate of interest must lead to rising prices, a high rate of interest to falling prices.” (Wicksell, 1898, pp. 77-78)

money; also in this economy there would be a credit market within which capital goods would be directly exchanged. The natural rate of interest can be defined by considering:

“... the phenomena of capital and interest on capital, as they would appear if liquid capital, production’s means of support, was in reality lent in kind, without the intervention of money; and only then it is possible to distinguish what modifications are in reality caused by the introduction of money. In the former case, i.e. if capital was lent in kind, there would undoubtedly develop, through the supply of and the demand for available capital, a certain rate of interest on the lending market, which would be the natural rate of interest on capital in the strictest sense.” (Wicksell, 1898, p. 84)

In a pure credit economy the credit market and the capital market are two distinct markets within which two different rates of interest are determined; the rate of interest on money and the natural rate of interest. Wicksell notes that often the difference between the two markets is forgotten, and the axiom is accepted according to which:

“... the level of the rate of interest on money is not in the last instance determined by a shortage of or a surplus of money, but by a shortage or surplus of real capital. The proposition is undoubtedly correct, but practically the only proof of it that has so far been put forward consists of a sort of catch-phrase. It is said that what is lent in reality is not money but real capital; money is only an instrument, a way of lending capital, and so on. But this is not strictly true; what is lent *is* money and nothing else; liquid real capital, in the form of goods, is bought and sold with the money, but is not lent.” (Wicksell 1898, p. 83)

What happens in the money market is not the pure reflection of what happens in the capital market of a world without money; only in the case of the rate of interest on money being equal to the natural rate of interest would the presence of bank money not have any effect.⁶ If the rate of interest on money is different from the natural one there will be a continuous price fluctuation; if the monetary rate is higher than the natural rate there will be continuous price increases caused by the rise in demand for new capital goods. The contrary process will arise where the rate of interest on money is higher than the natural rate of interest.⁷

⁶ “If the actual rate of interest on money corresponds with (the natural rate of interest), the intervention of money will cause no change in the economic equilibrium; money transactions are then only the particular form taken by what, theoretically speaking, could just as well have been effected without the intervention of money. In short there is no cause for a change in the price level.” (Wicksell, 1898, p. 84)

⁷ Wicksell (1898) considers the example of the housing market. When the rate of interest on money is higher than the natural rate the market price of houses will be higher than their reproduction costs and therefore it will become very convenient to build new houses and this shall trigger a continuous rise in prices.

Wicksell wonders what are the factors that determine the gap between the two rates; he observes that once they have fixed the rate of interest, the banks have no obvious reason to modify it and thus concludes that the difference between the two rates of interest is caused by the variations in the natural rate of interest:

“...‘other things being equal’, banks do not lower their rate of interest –why should they? Instead, they keep it unchanged until they are forced either to raise or to lower it by *changed* circumstances. in most cases changes in the rate of interest are probably caused by an increase or decrease in the demand for loans, which in their turn are caused by an increase or a decrease in the real or natural rate of interest on capital... the natural rate of interest is constantly subject to changes resulting from circumstances which are partly beyond all human control: a rise or a fall in wages because of a decrease or an increase in the supply of labour, or because of changes in the amount of liquid capital from which the demand for labour primarily emanates; a rise or a fall in the rent of land for the same reasons; finally, the yield from production itself, which can increase or decrease as a result of technical or physical conditions... we regard these latter changes as original, as *primum movens*, which is undoubtedly the only right and sensible thing to do, while the changes in the rate of interest on money, on the other hand, are regarded as conditioned... ” (Wicksell, 1898, pp. 81-82)

Finally, Wicksell notes that the process of price fluctuations caused by the gap between interest rates cannot last long; neither the individual bank nor all the banks together can maintain the monetary rate of interest at a different level than the natural rate for long.⁸

In the 1930s, following Wicksell, Robertson and Ohlin highlighted that the rate of interest on money is determined within the credit market:

“How... is the height of the interest level determined? The answer is that the rate of interest is simply the price of credit, and that it is therefore governed by the supply of and demand for credit.”(Ohlin, 1937b, p. 221)⁹

⁸ “Granted, then, our theory to be true in the main or in the abstract, what will be its practical consequences? To what extent would the leading money institutions be able to regulate prices? A single bank, of course, has no such power whatever; indeed, it cannot put its rates, whether much higher or much lower than prescribed by the state of the market; if it did, it would in the former case lose all profitable business; in the latter case its speedy insolvency would be the inevitable consequence. Not even all the banks of a single country united could do it in the long run; a too high or too low rate would influence its balance of trade, and thereby cause an influx or reflux of gold in the well-known way, so as to force the banks to apply their rates to the state of the universal money market.” (Wicksell, 1907, p. 217)

⁹ “The amount of tea bought is identical with the amount of tea sold, and nothing is needed to ‘ensure equality’ between them. But something is needed to ensure equality between the amount of tea which sellers are willing to put on the market and the amount which buyers are willing to take off it; and that something is a certain price of tea. Similarly, something is needed to ensure equality between the amount of money which

They noted that there is a relation between the credit supply and demand functions and the saving and investment functions,¹⁰ even if these functions do not coincide. A saving decision can lead to the choice of lending or accumulating money, while an investment decision can be financed by getting into debt with savers, by using existing money or, finally, by the creation of new money. The condition of equilibrium on the loanable funds market can thus be represented by the following equation:

$$S + \Delta M = \Delta H + I$$

S stands for the savings flow, ΔM the new money created by the banks, ΔH the fluctuations in the cash holdings accumulated by the private operators while I indicates the investment flows. If ΔM and ΔH are equal to zero the credit functions of credit demand and supply co-incide with the investment functions; Robertson (1934) defines the natural rate of interest as:

“... the rate at which the new lendings which can be absorbed by industry per atom of time and the new available savings for atom of time are equal.” (Robertson, 1934, p. 651)

If banks acted as simple intermediaries, collecting households' savings and transferring them to firms, the rate of interest on money would coincide with the natural rate. Robertson, like Wicksell, notes that banks may not perceive the variation in the natural rate of interest caused by a shift in the investment and savings curves, and therefore they may keep the monetary interest rate at a different level from the natural rate. In this case at the market rate of interest we find an imbalance between the saving decisions and investment decisions that will give rise to a variation in the quantity of money.

lenders are willing to put on the market for loans and the amount of money which borrowers are willing to take off it; and that something is a certain rate of interest.” (Robertson, 1937, pp. 429-430)

¹⁰ “That the relation between the curves referring to savings and investment and those referring to credit is close should be obvious. If a man plans to save, must he not either plan to invest or to lend? “ (Ohlin, 1937c, p. 425)

2. Keynes's criticism of the loanable funds theory.

Keynes's considerations about the LFT are contained in works published between 1937 and 1939 in which he responded to the criticism levelled at *General Theory*. Ohlin and Robertson, in particular, criticise the Keynesian theory that the interest rate depends on money demand and supply and is independent of saving and investment decisions. Instead, they hold that the interest rate depends on the credit demand and supply and thus on investment and saving decisions:

“The difference between Mr. Keynes' theory of interest and my own, which is built on the Stockholm theory of saving and investment, lies in the fact that Mr. Keynes gives to the quantity of cash a central place, whereas in my opinion the quantity of claims plays just as 'fundamental' a role and *provides a direct link with saving, investment and the whole economic process.*”(Ohlin, 1937c, pp. 426-7)¹¹

Keynes pays particular attention to the criticism made by Ohlin, who emphasises the influence of *planned* or *ex-ante investment* and *planned* or *ex-ante saving*.¹² He considers the concept of *ex-ante investment* used by Ohlin important because it makes it possible to highlight the fact that in a monetary economy it is necessary to have money at your disposal in order to carry out a spending decision.¹³ Keynes acknowledges that Ohlin's criticism has forced him to consider a point that he had completely overlooked in *General Theory*, which is to specify in which way firms get the money necessary to realise their investment decisions. Although Ohlin's criticisms led Keynes to pay more attention to the

¹¹ See also: Robertson (1936).

¹² Ohlin criticises the Keynesian analysis of consumption and saving based only on *ex post* variables: “...let me observe that Keynes's analysis on this point seems a little superficial. ... he indicates that consumption depends on the relationship between the community's income and the propensity to consume. ... There are two objections to this standpoint. The income which has causal significance is *not* Keynes' *ex-post* concept, the realized income during the last period, but the *expected* income. Secondly, the expectations for many coming periods influence considerably the consumption plans and actual consumption during the next period. To make the relation between consumption and *last* period's income the central thing in a *causal* analysis, which should explain why people act as they act, is to overlook that these actions are determined by expectations, which often have only a loose connection with last period's realised income.” (Ohlin, 1937a. pp. 62-63)

¹³ ‘... [E]x-ante investment is an important, genuine phenomenon, inasmuch as decisions have to be taken and credit or ‘finance’ provided well in advance of the actual process of investment...’ (Keynes, 1937c, p. 216).

financing of investment decisions, Keynes continued to dispute the thesis that ex-ante investment is financed by ex-ante saving. Keynes notes that saving decisions depend on the income level, which in turn depends on investment decisions, thus saving cannot be the source of investment financing inasmuch as it is the result of the investment process.¹⁴ The liquidity supply which allows firms to finance investments consists of the new money created by banks or the existing money that is made available to firms:

“The transition from a lower to a higher scale of activity involves an increased demand for liquid resources which cannot be met without a rise in the rate of interest, unless the banks are ready to lend more cash or the rest of the public to release more cash at the existing rate of interest. If there is no change in the liquidity position, the public can save ex ante and ex post and ex anything else until they are blue in the face, without alleviating the problem in the least.... This means that, in general, the banks hold the key position in the transition from a lower to a higher scale of activity. If they refuse to relax, the growing congestion of the short-term loan market or of the new issue market, as the case may be, will inhibit the improvement, no matter how thrifty the public propose to be out of their future incomes. On the other hand, there will always be *exactly* enough ex post saving to take up the ex post investment and so release the finance which the latter had been previously employing. 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, 1937c, p. 222)

In the works written between 1937 and 1939 Keynes, after having recognised the role of banks in financing firms, elaborates an analysis of the mechanism of money creation that is significantly different from the one contained in the *General Theory*. The analysis developed in the *General Theory* gives prominence to the store of wealth function of money and is based on the concept of money demand; the emphasis placed on these elements conditions the specification of the money creation process that is defined by focusing on the conditions that must be created in order to induce wealth owners to absorb in their portfolios the new quantity of money. This process is thus identified in the open market operations; through these operations, as is written in all the macroeconomic textbooks, the monetary authorities vary the quantity of money by creating the conditions that induce the wealth owners to change the composition of their portfolio. In the *General Theory* Keynes overlooks completely the money creation process carried out by the banks to finance firms’ investment decisions.

¹⁴ ‘Increased investment will always be accompanied by increased saving, but it can never be preceded by it. Disharding and credit expansion provides not an *alternative* to increased saving, but a necessary preparation for it. It is the parent, not the twin, of increased saving.’ (Keynes, 1939, p. 281).

Responding to Ohlin's criticism, Keynes acknowledges this limit and he sets out to overcome it by specifying a new motive that justifies the money demand, which he calls *finance motive*. He observes that planning an investment decision entails an increase in the demand for liquidity by the firms and thus he defines *finance motive* as the liquidity demand that firms express at the time they plan an investment. This solution allows Keynes to explicitly consider the problem of financing firms' investment decisions without changing the structure of the *General Theory*, so he is then able to concede that he made a mistake by overlooking this point.¹⁵

The specification of the *finance motive* has given rise to much commentary;¹⁶ for the purposes of our analysis the most relevant comment is that of Tsiang (1980), who considers the *finance motive* a substantial concession by Keynes to the LFT; a concession that cancels the revolutionary content of the *General Theory*:

“... the so-called Keynesian Revolution... from the point of view of monetary theory is really not much of a revolution. In fact, in the post-*General Theory* writing of Keynes, he had already made an important concession to traditional monetary theory, which, if carried to its logical conclusion, would completely erode away his original revolutionary stand. ... The crucial concession made by Keynes to the critics of his liquidity preference theory of interest rate is his acknowledgment of the so-called ‘finance’ demand for liquidity, or the demand for ‘finance’ for planned investment yet to be carried out.” (Tsiang, 1980, pp. 467-8)

We shall look in more depth at Tsiang's view in the next section.

3. The *finance motive* and the loanable funds theory.

Tsiang (1980) thinks that Keynes is right in his criticism of the concept of ex-ante savings used by Ohlin; he acknowledges that the credit supply cannot be determined by the ex-ante savings,¹⁷ but on the other hand, he underlines that in specifying the *finance*

¹⁵ “I should not have previously overlooked this point, since it is the copingstone of the liquidity theory of the rate of interest. I allowed, it is true, for the effect of an increase in *actual* activity on the demand for money. But I did not allow for the effect of an increase in *planned* activity, which is superimposed on the former, and may sometimes be the more important of the two...” (Keynes, 1937c, p. 220)

¹⁶ For a summary see: Bertocco 2005.

¹⁷ “Ohlin suggested that the demand for credit (or finance) for the ex-ante investment could be met by the supply of credit provided by ex-ante savings. Unfortunately, in order to make the concept of ex ante savings symmetric to the concept of ex ante investment, Ohlin and his Swedish colleagues defined the former as

motive, Keynes is forced to recognise explicitly that an increase in planned investments can trigger an increase in the interest rate.¹⁸ Nonetheless, as we have seen in the previous section, Keynes holds close to the thesis that the interest rate cannot be influenced by the savings decisions as these are a consequence of the investment decisions and therefore they cannot condition the supply of liquidity. Tsiang instead claims that with the introduction of the *finance motive*, Keynes is forced to accept the conclusion of the LFT about the relation between saving decisions and rate of interest. Tsiang illustrates this thesis by using and widening the definition of *finance motive* introduced by Keynes; he notes that the demand for money for planned activity does not depend only on planned investments, but also on planned consumption expenditures:

“...the logic, which made Keynes admit that there is a demand for finance for planned investment, now made him realize that there is also a demand for finance for planned consumption expenditures as well. ... It is, therefore, total planned expenditure that should be regarded as the primary determinant of the transactions demand for money, not income produced or received, transitory or permanent. If we simply substitute aggregate planned expenditure (for investment as well as consumption) for income as the chief argument for the money demand function, it would be easy to show that the liquidity preference theory of interest really comes to show the same thing as the traditional loanable funds theory.” (Tsiang 1980, pp. 471-2)

Tsiang rewrites the demand for money function as:

$$1) M_t^d = k_t(C_t^p + I_t^p) + L(r_t, W)$$

where C_t^p and I_t^p are current planned consumption and investment expenditures, r_t the current rate of interest, and W_t the current value of total wealth. Likewise, we can define the expression of money demand referred to the period $t-1$ as:

planned savings out of incomes that are expected to accrue in the future. But how could savings yet to materialize at some future date provide the ready finance currently needed by the investors? Keynes was certainly right in saying that the supply of finance must come out of existing cash balance or banks' credit creation.” (Tsiang, 1980, p. 469)

¹⁸ “... only one year after the publication of the *General Theory*, Keynes had already conceded that an increase in planned investment ... would exert a direct impact on the rate of interest through the increase in the ‘finance’ demand for liquidity, which he acknowledged as having been overlooked in the *General Theory*.” (Tsiang, 1980, p. 470)

$$2) M_{t-1}^d = k_{t-1}(C_{t-1}^p + I_{t-1}^p) + L(r_{t-1}, W_{t-1})$$

Tsiang further specifies that the income of the previous period is equal to the planned spending for consumption and investment realised in that period; therefore the following relation applies:

$$3) Y_{t-1} = C_{t-1}^p + I_{t-1}^p$$

From these relationships we can obtain:

$$4) \Delta M_t^d = M_t^d - M_{t-1}^d = k_t(C_t^p + I_t^p) - k_{t-1}Y_{t-1} + L(r_t, W_t) - L(r_{t-1}, W_{t-1})$$

If, for simplicity, we assume that $k_t = k_{t-1} = k$, we get:

$$5) \Delta M_t^d = kI_t^p - k(Y_{t-1} - C_t^p) + L(r_t, W_t) - L(r_{t-1}, W_{t-1})$$

Therefore the condition of equilibrium in the money market expressed in terms of flow becomes:

$$6) \Delta M_t^s = \Delta M_t^d = kI_t^p - k(Y_{t-1} - C_t^p) + L(r_t, W_t) - L(r_{t-1}, W_{t-1})$$

Tsiang observes that equation 6) coincides with the equilibrium condition for the loanable funds market:

“It can be immediately recognized that (6) is nothing but the equilibrium condition for the loanable funds market as stipulated by Robertson. $(Y_{t-1} - C_t^p)$ is exactly what he defined as planned saving, which is not what is expected to be saved out of income accruing in the future, but what is planned to be saved out of disposable income (i.e. income received in the preceding period)...” (Tsiang, 1980, p. 473)

Tsiang points out that 6) shows that a change in the propensity to save influences the rate of interest, and thus he concludes that it is not possible to speak of a Keynesian Revolution as Keynes does not manage to demonstrate that the conclusions of the LFT are unfounded.:

“Everything that Robertson tried to tell us is quite right. In particular, what has become the central issue of contention, viz, the question whether a change in thrift (or propensity to save) will have a direct effect on the rate of interest, should clearly be decided in favour of Robertson. From equation (6) it is clear that an increase in thrift, which lowers the schedule of planned consumption, will certainly bring about a decline in interest rate in order to redress the current money market equilibrium without operating indirectly through the multiplier effect, Pigou effect, the real balance effect, and whatnot, which modern economists find necessary to invoke to reconcile the classical view with the Keynesian doctrine. All the scorn and ridicule that Keynes and his followers heaped upon Robertson and the loanable funds theory of interest are totally unjustified.” (Tsiang 1980, p. 473)

The connection between saving decisions and rate of interest constitutes an essential element of the LFT; indeed, the presence of this link makes it possible claim that the spread of bank money does not alter the structure of the economic system compared to an economy in which saved resources are exchanged within the credit market; as a matter of fact, this link enables us to consider saving as a constraint on firms’ investment decisions.¹⁹ The presence of this link allows us to apply the concept of natural rate of interest to a pure credit economy and to maintain that this economy converges towards the equilibrium position that characterises an economy that does not possess a credit money; the only element that characterises a pure credit economy is the presence of an adjustment mechanism that drives the rate of interest on money towards the natural rate of interest.

Tsiang holds that by partially acknowledging the validity of Ohlin’s criticism through his specification of the finance motive, Keynes is forced to accept also the wicksellian theory of rate of interest. I do not subscribe to this view; I believe that Keynes’s recognition of the partial validity of Ohlin’s criticism is not in contradiction with his refusal to recognise the existence of a relation between saving decisions and rate of interest. I further believe that the explicit consideration of the problem of investment decision financing as well as the money creation mechanism that characterises an economy that uses bank money makes it possible to highlight aspects of a *monetary economy* which do not emerge if one considers only the liquidity preference theory.

¹⁹ Kohn (1981, p. 861) points out that the economic meaning of the unit period of the Robertsonian theory consists in underscoring the presence of a *finance constraint*: “The individual... faces a *finance constraint* during a given period (the individual) may dispose only of the money he possesses at the outlet of that period. The underlying paradigm – common to all theories in the Wicksellian tradition, including Keynes’ own *Treatise* – is the circular flow of money payments.” The concept of *planned saving* highlights the fact that the constraint on spending decisions is constituted by saving decisions.

To justify these statements it is necessary to highlight the limits of the finance motive concept introduced by Keynes to take account of Ohlin's criticism and which Tsiang uses to say that Keynes is forced to accept the loanable funds theory.²⁰ I believe that the fundamental limitation of Keynes's solution consists in utilizing a unique concept, the money concept, in order to describe two completely different phenomena. The former involves the demand for liquidity from agents, the firms, who do not have money and who incur debt to carry out a planned investment; the second involves, as maintained by the theory of liquidity preference, the factors which influence wealth owners' choices regarding the composition of their wealth. This makes the concept of money demand ambiguous; its use may lead to conclusions which are difficult to interpret because it is not clear if this concept concerns the first phenomenon or the second, or both. An example of the negative consequences deriving from the ambiguity of the money demand concept is the way in which Kaldor resolves the problem of the coherence of the liquidity preference theory and the specification of the money creation process by the banks. As is well-known, Kaldor's solution consists of abandoning the liquidity preference theory altogether. Kaldor (1982, p.21) states that the liquidity preference theory does not constitute a real break with the quantity theory of money as the specification of the speculative motive does not prevent Keynes from making the same mistake found in the quantitative theory. That is to say, considering money as an exogenous variable whose fluctuations, determined by the monetary authorities, influence the interest rate level. According to Kaldor, this analysis cannot be applied to a world in which bank money is used because in this case the variation of money supply does not precede spending decisions, but it is determined by these decisions; the liquidity preference theory thus becomes wholly irrelevant. (see: Kaldor 1985, p. 9)

The limit of Kaldor's solution lies in utilizing the concept of money demand to describe only the first phenomenon we speak about; in so doing he overlooks the fact that the new money created by the banks to finance firms represents an asset that shall be accumulated by wealth owners. He does not bother to specify the conditions which drive the wealth owner to store the new money created by banks to finance firms.

²⁰ For a critical analysis of the *finance motive* see for example: Graziani 1984, 1996; Bibow 1995; Chick 1997; Bertocco 2005.

I think that one solution which would make it possible to describe the two phenomena would be to specify two distinct markets: the money market and the credit market.²¹ This solution makes it possible to obtain different results. In the first place it enables us to describe the behaviour of firms that get into debt with the banks separately from that of wealth owners. The specification of the credit market allows us to emphasize that banks create money through a debt contract by which they finance the spending decisions of agents who do not have purchasing power. The credit demand function reflects the behaviour of firms; this demand for liquidity can be considered as a demand for credit since it is expressed by actors who: (a) do not have liquidity; and (b) who, when they obtain the cash, undertake to pay it back at a fixed future date. By specifying the credit demand function, we distinguish the firms' demand for liquidity to finance investment decisions from the demand for bank money which instead reflects the portfolio decisions of wealth owners. The money demand function instead represents the behaviour of wealth owners who decide how to use their wealth.

In the second place, distinguishing the credit market from the money market makes it possible to describe the money creation process carried out in an economy that uses a bank money, by distinguishing two phases that correspond to the distinction between finance and funding introduced by Keynes:

“The entrepreneur when he decides to invest has to be satisfied on two points: firstly, that he can obtain sufficient short term finance during the period of producing the investment; and secondly, that he can eventually fund his short-term obligations by a long-term issue on satisfactory conditions.” (Keynes 1937c, p. 217)

In the first phase banks finance firms by creating new money. Banks and firms are the main actors of this phase; the supply of credit does not depend on saving decisions but on the decisions taken by banks. The investments financed by the banks determine an increase in income according to what is laid down in the Keynesian income theory. Dalziel (1996, 2001) describes the different phases of the income multiplication process which arises out of the expansion in the demand for investment goods financed by the creation of new bank money. This analysis highlights the fact that the demand for

²¹ Many post Keynesians have underscored the utility of differentiating between the money and the credit market; see for example: Dow (1997); Wray (1992); Lavoie (1996); Arestis and Howells (1996, 1999); Rochon (1999).

investment goods and consumption goods are financed in different ways: the former is financed by new money created by the banks while the latter is financed by income received by workers (this point was underlined also by Minsky, 1980). In the second phase, wealth owners step in; the new money created by banks is added to the existing money and the saving flow generated by investment decisions increases the public's wealth. The second phase is the one in which firms and households express their decisions about the composition of their debts and their wealth; in this phase the conditions are created for the wealth owners to accept to hold the money created by the banks.²²

Finally, we can observe that the specification of the two phases of the money creation process allows us to reformulate the money demand function. If we assume that firms finance demand for investment goods through bank credit, while households finance consumption decisions with the flow of money they receive in every phase of the income multiplication process, then we must conclude that there is no need for either households or firms to accumulate cash holdings to finance their spending decisions. This conclusion is coherent with Wicksell's comment that, as we have seen in the preceding pages, in an economy where bank money is used the households and firms have no need to accumulate stores of money to finance their spending decisions. In a world in which bank money is used, the expression of money demand used by Tsiang for his criticism of Keynes must be modified in that the first component of the function, i.e. a linear function of planned spending for consumer goods and investment, must be cancelled.

The specification of the two phases of the money creation process enables us to clearly separate the phenomenon of investment decision financing from saving decisions. As Keynes points out, investment decisions can be financed with the new money created by banks or by the use of existing money that firms can obtain by offering shares to wealth owners; in this case investments are not financed by saving as the wealth owners who underwrite shares do not give up demanding goods, but they simply alter the composition of their wealth by exchanging money for shares. Robertson conceives of the *planned saving* as a constraint on firms' investment decisions, while Keynes underlines that the income saved, which is added to the stock of households wealth, heightens demand for financial assets without putting any limitation on the firms' investment decisions that are financed by means of the creation of new money or by the employment of existing money.

²² In Bertocco (2005) some examples of models that describe the credit market and the money market are specified.

4. The characteristics of a monetary economy from a keynesian prospective.

The element that joins Wicksell's and Keynes's analysis is the emphasis on the role of banks in the money creation process: both state that in a world in which bank money is used, banks can finance the spending decisions of economic agents by creating new money. They both highlight the fact that the object of the credit granted by banks to firms is not constituted by the resources saved by households, but rather the money created by banks. The fundamental difference between Keynes and Wicksell and in general the supporters of the LFT lies in the specification of the consequences of the presence of bank money. Introducing the distinction between the natural rate of interest and interest rate on money, Wicksell and the LFT supporters state that an economy that uses bank money converges towards the equilibrium position that characterises an economy without banks, in which there is no credit market, but just a capital market where the resources not consumed by savers are exchanged. The presence of bank money does not alter the structure of the economic system; the only element that distinguishes a pure credit economy is the presence of an adjustment mechanism that drives the rate of interest on money, determined within the credit market, towards the natural rate of interest. The working of a pure credit economy can therefore be described using a theory that applies to a world without banks.

In contrast, Keynes states that the spread of a fiat money such as bank money changes the structure of the economic system. He underscores this point by introducing the distinction between a *real exchange economy* and a *monetary economy*. As is well known, Keynes (1933a, 1933b) uses the former term to refer to an economy in which money is merely a tool to reduce the cost of exchange and whose presence does not alter the structure of the economic system, which remains substantially a barter economy. Keynes (1933a, p. 410) notes that the classical economists formulated an explanation of how the *real-exchange economy* works, convinced that this explanation could be easily applied to a *monetary economy*. He believed that this conviction was unfounded and stressed the need to elaborate a 'monetary theory of production', to supplement the real-exchange theories which we already possess.' (Keynes, 1933b, p. 411)

Keynes states that a monetary economy is an economic system in which the use of a fiat money substantially alters the law of production and the nature of transactions with respect to a barter economy. Keynes declares that in a *monetary economy*, or as it is

defined on other occasions, a *money-wage economy*, or *entrepreneur economy*, the classical theory according to which an entrepreneur will expand his production by employing a new worker if the marginal productivity of the work is higher than its marginal cost, is not valid. In a *monetary economy* Say's law does not apply and the levels of income and employment depend on the fluctuations in effective demand; because of this an entrepreneur shall take his production decisions by comparing the expected monetary proceeds with the monetary costs incurred in order to carry out production.²³ Keynes (1933b, p. 85) underlines that: "... the fluctuation of effective demand can be properly defined as a *monetary* phenomenon". He points out that the fluctuations in aggregate demand do not depend simply on the presence of money as also in a *real-exchange economy* money is employed, but rather they depend on the characteristics of a fiat money, and in particular, the fact that a fiat money is not produced by using labour:

"It is of the essence of an entrepreneur economy that the thing (or things) in terms of which the factors of production are rewarded can be spent on something which is not current output, to the production of which current output cannot be diverted (except on a limited scale), and the exchange value of which is not fixed in terms of an article of current output to which production can be diverted without limit... Money is par excellence the means of remuneration in an entrepreneur economy which lends itself to fluctuations in effective demand. But if employers were to remunerate their workers in terms of plots of land or obsolete postage stamps, the same difficulties could arise. Perhaps anything in terms of which the factors of production contract to be remunerated, which is not and cannot be a part of current output and is capable of being used otherwise than to purchase current output, is, in a sense, money. If so, but not otherwise, the use of money is a necessary condition for fluctuations in effective demand." (Keynes 1933b, pp. 85-6)

If money was constituted by a good which could be produced by labour as under a gold standard, fluctuations in the aggregate demand would not trigger persistent unemployment because the unemployed could, at least in theory, resort to mining gold.²⁴

²³ "The law of production in an entrepreneur economy can be stated as follows. A process of production will not be started up, unless the money proceeds expected from the sale of the output are at least equal to the money costs which could be avoided by not starting up the process. In a real wage or co-operative economy there is no obstacle in the way of the employment of an additional unit of labour if this unit will add to the social product output expected to have an exchange value equal to 10 bushels of wheat, which is sufficient to balance the disutility of the additional employment.... But in a money-wage or entrepreneur economy the criterion is different. Production will only take place if the expenditure of £ 100 in hiring factors of production will yield an output which it is expected to sell for at least £100." (Keynes, 1933b, p. 78)

²⁴ "In actual fact under a gold standard gold can be produced, and in a slump there will be some diversion of employment towards gold mining. If, indeed, it were easily practicable to divert output towards gold on a

On the contrary, in a system where fiat money is used, an increase in the demand for money causes a drop in the effective demand and thus a rise in unemployment, as the decision to accumulate money determines a level of aggregate demand that is insufficient to absorb all the production realized; this is the central theme of the *General Theory*.²⁵

I think that the considerations elaborated by Keynes to reply to Ohlin's criticisms allow us to broaden the analysis of the characteristics of a *monetary theory* beyond what was laid down in the *General Theory*. In particular, these considerations make it possible to give prominence to the second important structural change connected to the use of a fiat money regarding the nature of the exchanges; Keynes states that the diffusion of a fiat money changes the nature of the transactions compared with a *real-exchange economy*:

“The distinction which is normally made between a barter economy and a monetary economy depends upon the employment of money as a convenient means of effecting exchanges – as an instrument of great convenience, but transitory and neutral in its effect. It is regarded as a mere link between cloth and wheat, or between the day's labour spent on building the canoe and the day's labour spent in harvesting the crop. *It is not supposed to affect the essential nature of the transaction from being, in the minds of those making it, one between real things*, or to modify the motives and decisions of the parties to it. Money, that is to say, is employed, but is treated as being in some sense *neutral*.” (Keynes 1933a, p. 408)

The change in the nature of the exchanges connected with the presence of a fiat money can be explained by considering the characteristics of the mechanism for creating this type of money. Fiat money is not a commodity that is produced by the employment of labour, thus it cannot be produced by just any individual by means of his labour as instead happens for any given commodity. The production of a fiat money is the prerogative of a particular economic agent; in modern economies, the workings of which Keynes sets out to explain, this agent is constituted by the banks whose liabilities are used as a means of payment. Banks create new money, by financing spending decisions of agents who

sufficient scale for the value of the increased current output of gold to make good the deficiency in expenditure in other forms of current output, unemployment could not occur; except in the transitional period before the turn-over to increased gold-production could be completed” (Keynes, 1933b, pp. 85–86).

²⁵ “Unemployment develops, that is to say, because people want the moon; - men cannot be employed when the object of desire (i.e. money) is something which cannot be produced and the demand for which cannot be readily choked off. There is no remedy but to persuade the public that green cheese is practically the same thing and to have a green cheese factory (i.e. a central bank) under public control.” Keynes (1936, p. 235)
On this point see for example: Kregel (1980), Davidson (1994), Skidelsky (1996).

undertake to pay back the amount obtained at a future date. The employment of a fiat money such as bank money alters the nature of the exchanges with respect to a *real-exchange economy*. When bank money is used it is not necessary to own goods in order to obtain money, instead it is necessary to satisfy the banks' criteria for selecting requests for financing. In a world in which fiat money is used the availability of money is necessary in order to buy goods, but the availability of goods is not a prerequisite in order to obtain money.

This view, as we have seen, could be shared also by Wicksell, who recognises that banks finance firms' investment decisions by creating new money. In contrast to Wicksell, Keynes maintains that the change in the nature of exchanges alters the structure of the economic system, i.e. it makes possible phenomena that would not arise in an economy described by classical economics. According to Keynes the phenomenon that classical economics is unable to describe is the firms' investment decisions; in fact, he maintains that the classical theory describes a world in which consumption decisions prevail.²⁶ The *monetary economy* described by Keynes is characterised by a significant investment demand that is not financed by saving but by bank money; the presence of bank money thus constitutes the necessary condition for achieving a consistent flow of investments. However, the LFT describes an economy in which savings are the necessary condition for the realisation of investments; this theory can be applied to a *corn economy* in which the unconsumed corn is used as seed in the subsequent period-but it has no relation to the *monetary economy* described by Keynes.²⁷

²⁶ "The whole object of the accumulation of wealth is to produce results, or potential results, at a comparatively distant, and sometimes at an *indefinitely* distant, date. Thus the fact that our knowledge of the future is fluctuating, vague and uncertain, renders wealth a peculiarly unsuitable subject for the methods of the classical economic theory. This theory might work very well in a world in which economic goods were necessarily consumed within a short interval of their being produced. But it requires, I suggest, considerable amendment if it is to be applied to a world in which the accumulation of wealth for an indefinitely postponed future is an important factor; and the greater the proportionate part played by such wealth accumulation the more essential does such amendment become." Keynes (1937a, p. 113).

²⁷ Minsky (1980, p. 24) highlights this point: "A critical difference between Keynes and the 'classical' economists of the tradition... is that the analysis of the economy begins from quite different questions and perspectives. The classical analysis from Smith down to today's price theorists is directed toward questions of how particular prices and allocation are determined. The underlying paradigm is that of a 'village market'. Keynes, writing in the aftermath of a great financial debacle of capitalism, was concerned about the overall

The inability of the classical theory to describe an economy in which the presence of investments is relevant is, according to Keynes (1937a), demonstrated by the inability of this theory to take into account the uncertainty dimension; perhaps the most effective way to illustrate the features of investment decisions that characterise a monetary economy and thus to illustrate the relation between investment decisions and uncertainty is in the use of the concept of innovation that is at the centre of Schumpeter's analysis. As is well known, Schumpeter holds that innovations constitute the first endogenous factor that brings about the process of change characterising a capitalist economy. The phenomenon of innovation regards the sphere of production and it may consist of the realization of a new product, the introduction of a new productive method or the opening of new markets. We can consider investment decisions as the tool through which innovations are introduced, so the Keynesian entrepreneur who takes the investment decisions coincides with the Schumpeterian entrepreneur who introduces innovations.²⁸ This point is emphasized by Davidson (2000) who describes the differences between mainstream and Keynesian theory by distinguishing between ergodic systems (or immutable-reality models) and non-ergodic systems (or transmutable-reality systems). With the first term, Davidson refers to economic systems that replicate themselves unchangingly, or that are subject to alterations predictable in probabilistic terms. With the second term, Davidson refers to systems characterised by a process of continuous transformation triggered by investment decisions; he declares that the presence of the Schumpeterian entrepreneur is a necessary element of a non-ergodic system.²⁹

behavior of the economy; the perspective is that of an entrepreneur who must 'negotiate' with 'bankers'. Under this altered viewpoint, the initial concerns of economic theory pertain to the decisions to acquire and finance positions or holdings of capital assets. The difference between Keynesian and standard economics is there at the beginning." See also, for example: Minsky 1975; Chick 1986; Bibow, 2001.

²⁸ Several economists have emphasised the desirability of integrating the Keynesian theory of income determination with Schumpeter's theory of economic development; see for example: Minsky (1986, 1993) Goodwin (1993), Morishima (1992); Vercelli (1997); for a more detailed analysis see: Bertocco (2007).

²⁹ "If entrepreneurs have any important function in the real world, it is to make crucial decisions. Entrepreneurship ... by its very nature, involves cruciality. To restrict entrepreneurship to robot decision-making through ergodic calculations in a stochastic world... ignores the role of the Schumpeterian entrepreneur – the creator of technological revolutions bringing about future changes that are often inconceivable to the innovative entrepreneur. Entrepreneurs do not merely discover the future, they create it... Probability models are a beguiling representation of decision-making only in a world where only routine

In this case, investment decisions do not consist merely of adding to the existing stock of capital goods new units of capital goods identical to the existing ones, but we can consider them as the tool through which firms launch new products on the market, or modify the productive process through which the existing goods are realized, or even open new markets. The introduction of innovations determines the continuous evolution that characterises a monetary economy, a process which prevents us from considering the past and present as a base on which to formulate forecasts in probabilistic terms about the future results of economic decisions; in such a system the firms and wealth owners act in conditions of uncertainty.

We can note that the arguments Keynes uses to criticise the LFT permits us to define the importance of the uncertainty dimension starting from the specification of the characteristics of money. We can conclude that the presence of a fiat money constituted by bank money is the necessary condition for the development of an economy in which investment decisions become relevant and in which the presence of uncertainty becomes an essential factor. It is a causal relation which is the opposite of the one that emerges from the *General Theory* in which the presence of uncertainty represents an exogenous variable from which starting point Keynes elaborates his liquidity preference theory.

5. Loanable funds theory and development.

Leijonhufvud (1981) rejects Keynes's neoclassical synthesis and proposes integrating the keynesian income theory with the LFT by eliminating the liquidity preference theory. He underlines the importance of the natural rate of interest concept, since an economy whose rate of interest is at its natural level has not only reached the full employment equilibrium, but it can grow at a rate coherent with households' saving decisions. Leijonhufvud states that the most important aspect of the LFT is that it rehabilitates the concept of saving; thanks to this theory:

“... we regain a concept of saving as something more than an antisocial refusal to spend. It matters that it is also a supply of loanable funds. Higher savings propensities should normally

decisions are made... these models cannot explain the essential creative function of entrepreneurial behaviour in a Keynes-Schumpeter world where the reality is transmutable.”(Davidson 2000, p. 113)

entail more rapid growth of the wealth of Nations, not higher unemployment. It makes sense for governments bent on growth to encourage savings” (Lejnonhufvud, 1981, p. 196)

While the LFT considers saving as a necessary condition for the realisation of investments, Keynes emphasises that the existence of a significant investment flow depends on the presence of bank money and more generally on the existence of a developed financial system. An indirect confirmation of the ability of the Keynes approach to describe the evolution of a capitalist economy can be found in the analyses by various economists of a key phase in the evolution of modern economies, namely the industrial revolution (see for example: Gerschenkron, 1962; Hicks, 1969, 1989; Cameron, 1967; Deane 1967; Kindleberger, 1984; North and Weingast, 1989; North, 1990). These studies underline the fact that the economic development process has been conditioned by the financial system rather than by the availability of saving. North and Weingast (1989) for example, maintain that the development of the financial system made it possible to finance new productive activities by encouraging the wealth owners to liquidate their wealth composed of precious metals by underwriting the new financial instruments:

“The rise of banks and an increasingly differentiated set of securities, providing a relatively secure means of saving, brought individual savings into the financial system. Ashton reports that this ‘meant that men were less concerned than their fathers... to keep quantities of coin, bullion, and plate locked up in safes or buried in their orchards and gardens.’” (North and Weingast, 1989, pp. 825)

Coins, bullions and plates cannot be considered saving in the sense given to that concept by the supporters of the LFT, but rather they are a component of households’ wealth whose employment allows the firms to carry out their investment decisions without requiring any economic agent to renounce the consumption of resources. In this case the presence of an evolved financial system makes it possible to finance investment decisions through the employment of the existing money stock. It is true that accumulated wealth corresponds to the quantity of saving carried out in the past, but it would be wrong to conclude that investment decisions depend on saving decisions. In fact, in this case, as pointed out by Kaldor (1982), investment financing does not entail a reduction in the aggregate demand since it is not the result of a saving decision, but it is a consequence of the decision to change the composition of wealth.

Another relevant example is the analysis formulated by Gerschenkron about the industrialisation process in continental Europe in the XIX century. Gerschenkron

challenges the view that there is only one route that leads to industrialization, a route that must be followed by every country irrespective of the era in which the industrialisation process actually takes place. Historical experience shows instead that the process of industrialization in continental European countries was marked by characteristics which were very different from those of the industrialisation of England a few decades earlier. For our purposes, the most important aspect of Gerschenkron's analysis is made up of the conclusions he draws about the role of banks in the process of industrialisation. He observes that the role of the banks depends on the degree of economic backwardness of the country in which the industrialisation is starting. The role of the banks was modest in England, while it became fundamental in the industrialisation which later took place in the continental European countries, such as France, Germany and Italy, all more economically backward than England. Gerschenkron's thesis rests on two points. In the first place, he observes that the process of industrialisation in continental Europe was faster and more intense, and therefore required a greater amount of investment, per unit of time, than in England. This can be explained by the tendency of continental European countries to use the more advanced technologies that England introduced at the end of its process of industrialisation.

The second point on which Gerschenkron's thesis is based is his definition of capital and his criticism of the concept of original accumulation. The concept of original accumulation is an essential element of the argument, criticised by Gerschenkron, that there is just one route which must be followed to carry out the process of industrialisation. According to this view, there are certain prerequisites for industrial development, that is, conditions that must be met and without which industrialisation cannot take place. One of these requirements is the availability of capital; the industrialisation process must be preceded by a phase of wealth accumulation, creating the capital necessary for industrial development. Gerschenkron maintains that if it is acknowledged that the industrialisation of the most backward continental European countries was faster and more intense than the process in England, then it must be concluded that in the more economically backward countries industrialisation was preceded by a phase of wealth accumulation which was greater than the one in England. In other words, the original wealth accumulation of a country should be inversely proportional to its level of backwardness; paradoxically, the more backward the country, the wealthier it had to be to carry out the industrialisation process.

Gerschenkron claims that the experience of the industrial revolution in Europe shows that the availability of wealth is not a necessary nor a sufficient condition to trigger the process of industrialisation. In fact, he distinguishes between wealth and capital, and defines capital as the purchasing power available for financing the industrialisation process; wealth, observes Gerschenkron (1962, pp. 39-40), is not necessarily transformed into capital.³⁰ According to Gerschenkron, the English experience is a case in which industrialisation took place because of the presence of a financial system, created to overcome the financial crisis of the state, which proved capable of transforming private wealth into purchasing power available to the industrial firms (see also: Hicks, 1969; North, 1990); this thesis is consistent with that of North and Weingast (1989). Gerschenkron further notes that the experience of the continental European countries has shown that the presence of wealth is not a necessary condition for the formation of capital. As a matter of fact, in these countries capital, i.e. the purchasing power that made it possible to carry out the industrialisation process, was not created from the private wealth accumulated in an earlier phase, but rather, it was created by the banks.³¹ Gerschenkron (1962, p. 113) comments that, thanks to the process of money creation carried out by the banks, in the countries of continental Europe the phase of preparation for industrialisation practically coincided with the actual phase of industrialisation itself.

³⁰ Gerschenkron defines capital in a similar way to Schumpeter; while for Schumpeter (1912) capital is the purchasing power available to entrepreneurs to carry out innovations, for Gerschenkron capital is the purchasing power available for financing of the industrialisation process.

³¹“The building of factories in England no doubt benefited considerably from the existence of manifold sources of private wealth. One of the characteristics of the English development was that, in conditions of considerable antecedent progress, there was much willingness on the part of individuals to invest in industrial pursuits. But, in the more backward countries on the European continent, neither the size of previous accumulations nor the sympathy with industrial development was consonant with the much greater capital requirements of a delayed industrialization. The focal role in capital provision in a country like Germany must be assigned not to any original capital accumulation but to the role of credit-creation policies on the part of the banking system.” (Gerschenkron 1962, p. 45)

Conclusions

The principal conclusions of the LFT, forgotten in the years in which the keynesian theory prevailed, are nowadays accepted by the dominant monetary theory and constitute the theoretical foundation for the strategy followed by the central banks of many countries. This paper analysed the LFT starting from Keynes's response to the criticism of Ohlin and Robertson to the keynesian rate of interest theory. In addressing these criticisms, Keynes acknowledges that in the *General Theory* he overlooked the problem of investment decision financing and the role of the banks in firm financing and, in order to redress this limitation, he defines a new motive that justifies the money demand, the *finance motive*.

According to Tsiang the specification of the *finance motive* sanctions the failure of the keynesian revolution that aimed to highlight the monetary nature of the interest rate and, therefore, its independence from saving decisions. In this paper I set out to show the weakness in Tsiang's argument, and in particular to demonstrate that the explicit consideration of investment decision financing does not imply acceptance of the wicksellian theory of rate of interest, but, on the contrary, makes it possible to widen the analysis of the reasons for the non-neutrality of money beyond what was contained in *The General Theory*.

It has been observed that the element in common to both Wicksell and Keynes is the prominence they give to the fact that the banks finance firms investment decisions by creating new money. They both point out that the object of the credit granted by banks to firms is not the resources saved by households, but the money that they create. Where Keynes and Wicksell greatly diverge is in the specification of the consequences of the presence of bank money. Wicksell and the supporters of the LFT introduce the distinction between the natural rate of interest and the monetary rate of interest and state that the presence of bank money does not modify the structure of the economic system compared to an economy without bank money where only a capital market exists in which households transfer the saved resources to firms. In contrast, Keynes holds that the presence of a bank money radically changes the structure of the economic system. In order to highlight the impossibility of explaining the working of a *monetary economy* by using a theory that applies to a *real-exchange economy*, Keynes abandons the concept of natural rate of interest, highlights the monetary nature of the rate of interest and elaborates a theoretical framework in which saving decisions do not influence the rate of interest.

The first important structural change that characterises the *monetary economy* is income fluctuation; the *General Theory* is focused on this point. The views contained in the works through which Keynes responded, subsequent to the publication of the *General Theory*, to the supporters of the LFT makes it possible to highlight another element that characterises a *monetary economy*: the presence of a high level of investments. Indeed, Keynes maintains that the classical theory is only capable of describing an economy in which consumer decisions prevail; we can think of a *corn economy* in which the unconsumed corn is used as seed. In such case the saving decisions constitute the necessary prerequisite for the realisation of investments as set out under the LFT. According to Keynes (1937a), the classical theory's inability to describe an economy in which the presence of investments is relevant is shown by the inability of this theory to take into account the uncertainty dimension. Instead, Keynes describes an economy in which the presence of bank money constitutes the necessary condition to explain the existence of high investment flows and to explain the importance of the uncertainty dimension. While the LFT considers saving as a necessary condition for the realisation of investments, Keynes highlights that the existence of significant investment flows depends on the presence of bank money and more in general on the existence of a developed financial system. Keynes's approach seems to be coherent with the conclusions of numerous studies that highlight the role of banks and, more in general, of the financial system in the industrialisation process in western countries.

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