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2009/6



UNIVERSITÀ DELL'INSUBRIA
FACOLTÀ DI ECONOMIA

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Printed in Italy in Dicembre 2009
Università degli Studi dell'Insubria
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ON KEYNES'S CRITICISM OF THE *LOANABLE FUNDS THEORY*

Giancarlo Bertocco

Abstract

Contemporary monetary theory, by accepting the theses of the Loanable funds theory, distances itself from Keynes, who considered the rate of interest as an exclusively monetary phenomenon, and overlooks the arguments Keynes used, following publication of the *General Theory*, to respond to the criticism of supporters of the Loanable funds theory such as Ohlin and Robertson. This paper aims to assert that the explicit consideration of the role of banks in financing firms' investments connected with the specification of the *finance motive* does not imply acceptance of the LFT, which holds that the interest rate is a real phenomenon determined by saving decisions, but makes it possible to elaborate a theory of credit alternative to the LFT and a sounder theory of the non neutrality of money than the one based on the liquidity preference theory.

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. 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.² 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 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

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 Post Keynesians too, highlight the common strands between the mainstream view of monetary policy, based on Wicksell's theory, and the endogenous money theory (see for example: Rochon and Setterfield 2007; Fontana 2007).

Contemporary monetary theory, by accepting the theses of the LFT, distances itself from Keynes, who considered the rate of interest as an exclusively monetary phenomenon, and overlooks the arguments Keynes used, following publication of the *General Theory*, to respond to the criticism of supporters of the LFT such as Ohlin and Robertson. In the face of these criticisms Keynes acknowledges that in the *General Theory* he completely neglected the issue of investment decisions financing and the process of money creation carried out by banks. He believes it is possible to overcome this shortcoming without necessarily having to accept the view of the supporters of the LFT according to which savings determine investments and the interest rate level; as is well known the solution elaborated by Keynes is to specify a new motive that justifies the money demand: the *finance motive*.

Contemporary monetary theory therefore seems to have accepted the approach of Tsiang (1980) who considers the *finance motive* a substantial concession by Keynes to the LFT which cancels the revolutionary content of the *General Theory*. In other words, contemporary monetary theory seems to share the view of Leijonhufvud (1981, pp.195-6) that: "... the rate of interest *will* go to the ... 'natural' level, and thus equate full employment saving and investment.." (See also: Kohn 1981, Cesaroni 2001, Bindseil 2004)

This paper aims to assert that the explicit consideration of the role of banks in financing firms' investments connected with the specification of the *finance motive* does

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)

not imply acceptance of the LFT, which holds that the interest rate is a real phenomenon determined by saving decisions, but makes it possible to elaborate a theory of credit alternative to the LFT and a sounder theory of the non neutrality of money than the one based on the liquidity preference theory. In particular, it makes it possible to break the causal link between saving decisions and credit supply and enables us to show that in a *monetary economy* the meaning of the concepts of consumption, saving and credit changes with respect to those described by the LFT and Say's law cannot be applied.

The work is divided into four parts. In the first part the most important aspects of the LFT are described, while in the second one, Keynes's reply to Ohlin's criticism is set out. In the third part, we use Keynes's analysis to show the limits of the LFT. In particular, this part critically analyses the view that because of the specification of the *finance motive*, Keynes is forced to recognise that the interest rate depends on saving decisions. The last section shows that the reasoning Keynes uses to respond to the criticisms by LFT supporters makes it possible to formulate a sounder explanation for the non neutrality of money than the one based on the liquidity preference theory.

1. The loanable funds theory.

A detailed reconstruction of this theory does not fall within the aims of this paper; instead, the focus shall be put on some aspects of the LFT necessary to understand, on the one hand, Ohlin's and Robertson's critiques of the Keynesian interest rate theory, and on the other, Keynes's response to these critiques. These aspects of the LFT can be illustrated by taking Wicksell as a reference point. As Leijonhufvud (1981, p. 151) notes, Wicksell's theoretical reference point is the Quantity Theory of Money. 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.

Wicksell notes that the presence of bank money alters the characteristics of the functions of money supply and demand. In a world in which money is either metallic money or banknotes issued by the central bank, every individual must create a stock of money to finance transactions; therefore, to demand money means to accumulate a store of cash. In this case, the functions of money demand and supply are independent: the quantity of money in circulation may be different from the quantity of money demanded, and the difference between these quantities will cause a variation in the price level, according to the Quantity Theory of Money. Wicksell points out that in a bank money world, to demand money does not mean to accumulate stores of money, but rather it means demanding means of payments from the banks. In this case 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.³

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.⁴ 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

³ 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... supply and demand of money have in short now become one and the same thing.” (Wicksell, 1898, pp. 75-76)

⁴ “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)

Wicksell thus concludes that the concept of the natural rate of interest has an important role even in a bank money world in which capital goods are not exchanged in kind but are purchased using money. In a world without bank money the capital market coincides with the credit market; 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.⁵ Wicksell stresses that the money market which characterises a pure credit economy is not the pure reflection of what happens in the capital market of a world without money; the capital market and the natural rate of interest are not observable variables, but just theoretical entities. The two rates may therefore be different, and Wicksell states that only in the case of the rate of interest on money being equal to the natural rate of interest does the money market coincide with the capital market and the presence of bank money does not alter the structure of the economic system:

“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.” (Wicksell 1898, p. 84).

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 lower 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.

⁵ Wicksell notes that often the difference between the two markets is forgotten: “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. Negotiation concerning the level of interest on loans is conducted with the owners of the money, not with the owners of the real capital. ” (Wicksell 1898, p. 83)

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.⁶ 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.

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

2.1 *Keynes's theory of the interest rate*.

In order to understand the meaning of Keynes's reply to Ohlin's and Robertson's criticisms it is useful to recall the characteristics of the theory of the interest rate that Keynes presents in the *General Theory*. In this work, Keynes abandons the concept of the natural rate of interest and highlights the monetary nature of the rate of interest:

“In my *Treatise on Money* I defined what purported to be a unique rate of interest, which I called the *natural rate* of interest – namely, the rate of interest which, in the terminology of my *Treatise* preserved equality between the rate of saving (as there defined) and the rate of investment. I believed this to be a development and clarification of Wicksell's ‘natural rate of interest’... I am no longer of the opinion that the concept of a ‘natural rate of interest’, which previously seemed to me a most promising idea, has anything very useful or significant to contribute to our analysis.” (Keynes 1936, pp. 242-3)

This conclusion is justified by the fact that Keynes sets out to present an alternative theory to the classical one that he considers unsuitable for explaining the working: “... of the economic society in which we actually live...” (Keynes 1936, p. 3). Keynes maintains that the economic society in which we actually live is an economy in which the levels of income and employment cannot be considered given but are subject to changes determined by fluctuations in effective demand; in other words, it is an economy in which Say's Law does not apply. Moreover, Keynes notes that the fluctuations in aggregate demand can be

⁶ “...‘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...” (Wicksell, 1898, pp. 81-82)

considered a monetary phenomenon, that is a phenomenon that depends on the particular characteristics of the money used in what he defines a *monetary economy* as opposed to a *real-exchange economy*.⁷ In chapter 17 of *General Theory* two essential properties of money are defined: (a) zero elasticity of production; and (b) zero elasticity of substitution between liquid assets and reproducible goods. The first property refers to the fact that entrepreneurs cannot cause more money to be produced by hiring additional labour. By the second property, Keynes means that ‘as the exchange value of money rises there is no tendency to substitute [producible goods] for it’ (Keynes, 1936, p. 231).

We can define the monetary nature of fluctuations in effective demand by starting from the principle of effective demand that Keynes introduces in chapter 3 of *General Theory* according to which: “...given what we shall call the community’s propensity to consume, the equilibrium level of employment, i.e. the level at which there is no inducement to employers as a whole either to expand or to contract employment, will depend on the amount of current investment. (Keynes 1936, pp. 27-8) Since investment decisions depend on the rate of interest, the validity of the critique of Say’s law is based on the possibility of explaining the reasons why in the presence of effective demand that is insufficient to ensure full employment, the rate of interest: “does not automatically fall to the appropriate level.” (Keynes 1936, p. 31) Keynes believes that the presence of money with the abovementioned characteristics constitutes the necessary element in order to explain why the interest rate cannot be considered as the mechanism capable of ensuring the full employment equilibrium. In the second chapter of *General Theory* Keynes announces that the presence of money is the essential element on which his theory of the rate of interest is based: “We shall discover... that money plays an essential part in our theory of the rate of interest...” (Keynes 1936, p. 31)

In chapter 13 of *General Theory* Keynes states that the presence of money renders the classical theory of the rate of interest meaningless; the interest rate cannot be the reward for abstaining from consumption because the saver can decide to use the non consumed income to accumulate money; in this case, even though he is saving, he does not get any

⁷ Keynes uses the term *real exchange economy* to denote an economy in which money is just an instrument that makes it possible to reduce the costs of the exchange; the use of money does not change the structure of the economic system with respect to a barter economy. With the term *monetary economy*, Keynes refers to an economy in which the presence of fiat money radically changes the nature of transactions and the law of production compared with a *real-exchange economy*. (Keynes 1933a, p. 408)

rate of interest.⁸ Thus, Keynes concludes that the rate of interest: "...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 1936, p. 167)

The presence of money breaks the link between saving decisions and investment decisions; it is vital to remember that Keynes points out that this happens when the money used has certain characteristics that, as we have seen, are described in chapter 17 of *General Theory* and also in the preparatory works where Keynes distinguishes between a *real exchange economy* and a *monetary economy*. What differentiates these two economies is not the presence of money, but the characteristics of the money used. In the first case, money is a good that can be produced through labour, therefore money is a component of current output; however, in the second case, the presence of money with the abovementioned characteristics causes fluctuations in the aggregate demand and renders Say's Law inapplicable.⁹

The explanation that Keynes furnishes for the relation between money and fluctuations in the aggregate demand is based on the fact that in a world in which money is a good that can be produced through labour, there cannot be unemployment as all the unemployed workers could set about producing money; Keynes considers the case of gold money.¹⁰ A world in which money produced through labour is used, is a world in which a few goods necessary to ensure the survival of consumers are produced; a world which could be compared to Smith's corn economy or Bohm-Bawerk fishermen's economy in which just one good is produced, salaries are paid in kind and in which saving means not only deciding not to consume a part of the income constituted by the only good produced, but

⁸ "It should be obvious that the rate of interest cannot be a return to saving or waiting as such. For if a man hoards his savings in cash, he earns no interest, though he saves just as much as before." (Keynes 1936, pp. 166-7)

⁹ "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, p. 86)

¹⁰ "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 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..." (Keynes 1933b, p. 86)

also to use this good as a means of production. In the case of Smith's corn economy, saving means using the unconsumed grain as seed and as wages to pay the productive workers, while in the case of Bohm-Bawerk's fishermen's economy, saving means using the unconsumed fish to feed the workers who are involved in building a boat. In both cases Say's Law applies: the production decisions determine the distribution of an equivalent amount of income in terms of goods which give rise to an equivalent level of consumption and investment since, as we have seen, saving decisions are automatically translated into investment decisions.

The presence of money that is not produced by labour changes the structure of the economic system; in particular, it renders Say's Law inapplicable because the production decisions do not necessarily determine an equivalent amount of aggregate demand. Let us suppose that a certain level of production is achieved and that an equivalent amount of income in money is distributed; part of this income will certainly be used to demand consumer goods, while another part will be saved. In this case, Keynes notes that the saver may simply decide to accumulate money; indeed, money is not perishable and can be conserved forever in a drawer, while Smith's corn or Bohm-Bawerk's fish can be conserved only by using them productively. In the *monetary economy* described by Keynes it cannot be taken for granted that a level of aggregate demand that is capable of absorbing the entire production is determined; the presence of money may therefore cause fluctuations in aggregate demand.¹¹

In the *General Theory*, Keynes puts at the centre of the analysis the decisions of wealth owners and the explanation of the reasons that lead these agents to accumulate money. He describes their behavior by means of the function of liquidity preference, whose features presuppose the existence of uncertainty over the future value of the interest rate.¹² A change in the expectations of the future value of the interest rate causes a change

¹¹ Keynes emphasizes that the greater ease of maintenance of money with respect to goods, may explain situations of deficiency of effective demand: "I fancy... that there is a further feature of our actual monetary system which makes a deficiency of effective demand a more frequent danger than the opposite; namely the fact that the money in terms of which the factors of production are remunerated will 'keep' more readily than the output which they are being remunerated to produce, so that the need of entrepreneurs to sell, if they are to avoid a running loss, is more pressing than the need of the recipients of income to spend." (Keynes 1933, p. 86)

¹² "There is ...a necessary condition failing which the existence of a liquidity-preference for money as a means of holding wealth could not exist. This necessary condition is the existence of *uncertainty* as to the

in the function of liquidity-preference and this, Keynes notes, does not translate into a variation in the quantity of money but rather into a variation in the interest rate since the money supply is determined by the monetary authorities and it does not necessarily adapt to the variations in demand;¹³ the interest rate may therefore reach levels higher than that necessary to ensure full employment.¹⁴

2.2 Keynes's response to Ohlin.

Keynes's considerations about the LFT are contained in works published between 1937 and 1939 in which he responded to the criticism levelled at the *General Theory* by supporters of the LFT such as Ohlin and Robertson. Ohlin criticizes the definition of saving that Keynes attributes to the classical economists according to which a saving decision gives rise to an equivalent investment decision as happens in the case of Smith's corn economy. He replies to Keynes that, starting with Wicksell, economists recognize that the saving decisions do not necessarily translate into investment decisions since, as Keynes himself observed, criticizing the classical theory, a saver may decide to accumulate money.¹⁵ Moreover, in line with Keynes, Ohlin accepts associating the interest rate with a

future of the rate of interest, i.e. as to the complex of rates of interest for varying maturities which will rule at future dates." (Keynes, 1936, p. 168)

¹³ "... it is impossible for the actual amount of hoarding to change as a result of decisions on the part of the public, so long as we mean by 'hoarding' the actual holding of cash. For the amount of hoarding must be equal to the quantity of money...and the quantity of money is not determined by the public. All that the propensity of the public towards hoarding can achieve is to determine the rate of interest at which aggregate the aggregate desire to hoard becomes equal to the available cash." (Keynes 1936, p. 174)

¹⁴"It might be more accurate, perhaps, to say that the rate of interest is a highly conventional, rather than a highly psychological phenomenon. For its actual value is largely governed by the prevailing view as to what its value is expected to be. Any level of interest which is accepted with sufficient conviction as *likely* to be durable *will* be durable... [the rate of interest] may fluctuate for decades about a level which is chronically too high for full employment..." (Keynes 1936, 203-4)

¹⁵ "I am sure... that most reader of the *General Theory* have been much surprised in finding (on p. 21)... that the classical theorists... "are fallaciously supposing that there is a nexus which unites decisions to abstain from present consumption with decisions to provide for future consumption." Practically all monetary theorists take account of the fact that saving accompanied by 'hoarding' by some people need not lead to investment by other people. Furthermore, it is the very essence of Wicksell's theory of money and 'cumulative processes' that there is no such nexus between plans to save and decisions to invest." (Ohlin 1937b, p.234)

credit contract by means of which it is not the saved resources which are exchanged, but rather the money available today against money available in the future. However, following Wicksell's lesson, he notes that the object of the credit is not just the existing money but also the new money created by the banks. To underline this difference, Ohlin distinguishes the functions of money demand and supply defined by Keynes from the functions of money demand and supply of the loanable funds theory and he stresses that they are *ex ante* concepts:

“One must distinguish sharply between the quantity of credit actually given (corresponding to the quantity of a commodity purchased and sold), on the one hand, and the supply and demand *curves* for credit (or commodities) on the other. The former is simply the point of intersection of the curves. When it is said in price theory that the price of a commodity is governed by supply and demand, the meaning is that it is determined by the demand and supply *curves*, which express the planned sales and purchases at different possible prices during a certain future period. These curves are *ex-ante* concepts and indicate alternative purchase and sales plans. In the same way the price of credit is determined by the supply and demand *curves* for credit or, which amounts to the same, for ‘claims’. The causal reasoning is *ex-ante*.” (Ohlin 1937c, pp.423-4)

Ohlin specifies the factors that influence the supply and demand curves for credit. First of all, he points out that there is a close connection between the curves that define saving and investment decisions and those that represent the supply and demand for credit.¹⁶ Ohlin acknowledges, as we have seen, that the planned supply of credit does not necessarily coincide with the planned savings since: “...it is possible to plan to save and to increase the quantity of cash instead of lending.” (Ohlin 1937c, p. 425). If we admit that savers may decide to accumulate money, we must conclude that the credit supply may increase independently of the saving decisions due to the decision of savers to reduce their stock of money.¹⁷ Finally, Ohlin asserts that the banking system has an important role in determining the supply of credit independently from saving decisions.¹⁸ Therefore, he concludes that the interest rate is determined within the credit market and is influenced by

¹⁶ “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)

¹⁷ “...one can plan to extend new credits in excess of planned savings, if one is willing to reduce one's own quantity of cash.” (Ohlin, 1937c, p. 425)

¹⁸ “... the banking system may plan to increase or reduce the volume of credit.” (Ohlin, 1937c, p. 425)

all the factors that determine the *ex ante* supply and demand curves for credit.¹⁹ Once the relation between saving decisions and interest rate is confirmed, the concept of the natural rate of interest is recuperated; 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)

In the face of Ohlin’s criticism, Keynes highlights in particular the concept of *ex ante* investment; he recognizes that the planning of an investment decision leads the entrepreneur to obtain liquidity to finance this cost and thus associates the investment decisions with the demand for credit.²⁰ However, he does not accept Ohlin’s thesis that the credit supply depends on *ex ante* savings,²¹ but he recognizes the role of banks in creating new money.²² Not only does Keynes accept an important point of the LFT, but he uses the presence of banks to underline, in contrast with the LFT, that the demand for credit is satisfied by means of the creation of money by banks and not by savings:

“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

¹⁹ “The rate of interest is the price of credit, and is governed by the supply and demand *curves* in the same way as commodity prices. These supply and demand curves for credit are closely related to the willingness and ability of people to save and invest... But these curves are also influenced by a desire to vary cash holdings or make financial investments in old assets and by a change in the credit policy of the banking system.” (Ohlin 1937c, p. 427)

²⁰ “... *ex 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... In what follow I use the term ‘finance’ to mean the credit required in the interval between planning and execution” (Keynes 1937c, p. 216)

²¹ “Surely nothing is more certain than that the credit or ‘finance’ required by *ex ante* investment is not mainly supplied by *ex ante* saving.” (Keynes 1937c, p. 217)

²² “The *ex ante* saver has no cash, but it is cash which the *ex ante* investor requires. On the contrary, the finance required during the interregnum between the intention to invest and its achievement is mainly supplied by specialists, in particular by banks, which organize and manage a revolving fund of liquid finance.” (Keynes 1937c, p. 219)

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 order to highlight the distance between his theory and Ohlin’s, Keynes separates the money market from the credit market and states that his theory of the rate of interest is elaborated considering the money market. Indeed, Keynes considers the ‘finance’ as a further component of money demand.²³ 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. (Keynes 1937c, p.220)

The specification of the *finance motive* has given rise to much commentary;²⁴ for the purposes of our analysis I think it is important to emphasize that with the specification of the *finance motive*, Keynes’ money market seems to have the same characteristics as the loanable funds market described by Ohlin and Robertson. As a matter of fact, commenting on the concept of the finance motive, the latter states that:

“I nourish a hope that [Mr. Keynes] will yet come to agree that analysis in terms of supply and demand for money-to-hold at a moment of time, and analysis in terms of supply and demand for money-to-lend during an interval of time, are *alternative* methods of procedure; and that, while neither is more than a first stage in the elucidation of the underlying forces governing the behaviour of the rate of interest, either, *if carried through consistently*, will give the same result as the other.” (Robertson 1938, p. 317)

Using Robertson’s analysis as a starting point, Tsiang (1980) 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)

²³ “If by ‘credit’ we mean ‘finance’, I have no objection at all to admitting the demand for finance as one of the factors influencing the rate of interest. For ‘finance’ constitutes ... an additional demand for liquid cash in exchange for a deferred claim. It is, in the literal sense, a demand for money.” (Keynes 1937c, pp.209-10)

²⁴ For a critical analysis of the *finance motive* see for example: Graziani, 1984, 1986; Asimakopulos 1985, 1991; Bibow 1995; Chick 1997; Bertocco 2005.

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

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

3.1 Tsiang's criticism.

Tsiang (1980, p. 469) 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, but on the other hand, he underlines that in specifying the *finance motive*, Keynes is forced to recognise explicitly that an increase in planned investments can trigger an increase in the interest rate.²⁵ Nonetheless, 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. He 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:

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

²⁵ “... 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)

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:

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

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. 474)

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 to 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. The presence of this link allows the supporters of the LFT 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.

3.2 The limits of the Loanable funds theory.

In section 2.1 it was underlined that the presence of money that is not produced through labour constitutes, according to Keynes, the necessary condition for eliminating the link between saving decisions, investment decisions and interest rate on which the classical theory is founded. In the following two sections we recalled that Keynes’s views do not prevent the supporters of the LFT from confirming the link between saving decisions and rate of interest and therefore to re-introduce the distinction between natural rate of interest and the rate of interest on money; this is the theoretical position that seems to prevail today. The arguments that Keynes uses to respond to the criticisms made by the supporters

of the LFT make it possible, in my opinion, to show the limits of the theory of credit and interest rate that characterizes the LFT.

3.2.1 *The nature of credit in a monetary economy.*

I believe that Keynes's insistence, in the face of Ohlin's comments, on denying the relation between saving decisions, credit supply and the interest rate is due to his conviction that the presence of money and, in particular, bank money alters the meaning of the concepts of consumption, saving and credit with respect to a : "...non-exchange Robinson Crusoe economy, in which the income which individuals consume or retain as a result of their productive activity is, actually and exclusively, the output *in specie* of that activity." (Keynes 1936, p. 20)²⁶. According to the LFT the credit phenomenon is independent of the presence of bank money; its nature does not change with the presence of banks, indeed the natural rate of interest that characterizes an economy in which capital goods are exchanged in kind constitutes the reference point to which the rate of interest on money converges. In contrast, Keynes abandons the concept of natural rate of interest and, underlining the monetary nature of the rate of interest, states that the credit phenomenon that characterizes an economy that uses bank money is profoundly different from that which is manifested in the world in which the concept of natural rate of interest applies.

I think Keynes's criticism of the analysis of the process of capital formation by the Committee of Statistical Experts following the LFT is particularly important in illustrating this thesis:

"According to the Committee funds for investment can only become available either from prior saving or from dishoarding and credit expansion. ... The Committee have overlooked the fact that *spending* releases funds just as much as saving does, and that these funds when released can then be used indifferently for the production either of capital goods or of consumption goods. ... Money which is spent on prior consumption flows into the same pool of available funds as money which is saved, and is available to finance at the next stage the acquisition either of capital goods or of consumption goods... Thus the Committee's list of sources of funds potentially available for investment is incomplete. As soon as it is understood that the available funds arise from the *whole* of the money income earned at a previous date, whether saved or spent, supplemented by dishoarding and credit expansion, and are then employed for the *whole* of production ... at the subsequent date whether for investment or for

²⁶ Keynes criticizes: "The conviction, which runs, for example, through almost all Professor Pigou's work that money makes no real difference except frictionally and that the theory of production and employment can be worked out (like Mill's) as being based on 'real' exchanges with money introduced perfunctory in a later chapter..." (Keynes 1936, pp. 19-20)

consumption, their schematism breaks down completely in so far as it purports to relate the funds arising from savings at a previous date to the funds required for investment at a subsequent date.” (Keynes, 1939, pp.572-3)²⁷

Keynes attributes to the classical theory an error of logic in applying to a world in which money is used and in which incomes are paid in money, the relations that hold in a Robinson Crusoe economy or in an economy such as Smith’s corn economy or Böhm-Bawerk’s fisherman’s economy. In this world the consumption decisions determine the destruction of resources already produced while the phenomenon of saving consists in removing from consumption a part of the resources already produced in order to use them for the expansion of the future production. Keynes leads us to note that these definitions of consumption and saving have been improperly applied by the LFT also to a world in which money is used; following the LFT, only the money that is saved can support the investments and it is implicitly assumed that the money that is used to purchase consumer goods is destroyed and meets the same fate as the goods that are consumed. But the money that is used to purchase consumption goods does not disappear from circulation, just as the saved money does not disappear, and it is not clear, for example, why the money used to purchase goods cannot be used to finance investment decisions (See: Maclachlan 1993, p. 143).

In a Robinson Crusoe economy or in Smith’s corn economy or in the Böhm-Bawerk economy there is a close relation between saving decisions and the credit phenomenon; the object of credit is made up of the unconsumed resources that savers transfer to entrepreneurs through the credit contract. The LFT deems that the presence of bank money does not change the nature of credit; instead, Keynes makes us recognize that in a world in which bank money is used, the credit supply depends on the decisions of the banks and not on saving decisions. Hence, the nature of the credit changes as the banks cannot be considered as mere intermediaries.

In my opinion a further element in favour of Keynes’s thesis is the argument Schumpeter uses to criticise the traditional theory of credit according to which banks are mere intermediaries who lend what they collect and there is no significant difference between the bank deposit and the deposit that has a real good as an object. In both cases the depositor forgoes use of the object loaned and if the depositor, for example the cloakroom attendant described by Cannan (1921), had permission to lend the deposited

²⁷ In his reply to Robertson’s criticism, Keynes argued that: “Saving has no special efficacy, compared with consumption, in releasing cash and restoring liquidity.” (Keynes, 1939, p. 233)

bags, like the bank he could not lend more than what he received in deposit. Schumpeter criticizes Cannan's thesis noting that:

“As Professor Cannan put it... ‘If cloakroom attendants managed to lend out exactly three-quarters of the bags entrusted to them... we should certainly not accuse the cloakroom attendants of having ‘created’ the number of bags indicated by the excess of bags on deposits over bags in the cloakroom.’ Such were the views of 99 out of 100 economists.

But if the owners of those bags wish to use them, they have to recover them from the borrower who must then go without them. This is not so with our depositors and their gold coins. They lend nothing in the sense of giving up the use of their money. They continue to spend, paying by check instead of by coin. And while they go on spending just as if they had kept their coins, the borrowers likewise spend ‘the same money at the same time’. Evidently this phenomenon is peculiar to money and has no analogue in the world of commodities. No claim to sheep increases the number of sheep. But a deposit though legally only a claim to legal-tender money, serves within very wide limits the same purposes that this money itself would serve.” (Schumpeter 1954, pp. 1113-4)

The presence of banks profoundly alters the nature of credit and the relation between saving and credit; credit becomes an independent phenomenon from saving decisions.²⁸ Schumpeter stresses that banks create more or less perfect substitutes of money at the moment in which someone deposits money with them, but we can observe that banks do not create money only at the moment in which they receive deposits; in a world in which their liabilities are used as a means of payment, banks can finance an agent by granting him a line of credit, that is, by authorising him to issue cheques up to a certain amount.

Keynes (and Schumpeter) notes that not only does the presence of bank money make it impossible to use the concepts of saving and credit that characterizes the economy described by Cannan and the traditional theory, but it changes radically the structure of the economic system, i.e. it makes possible phenomena that do not occur in the *real exchange economy* described by the traditional theory. There is a weak feature in the LFT: if we

²⁸ The presence of banks “... alters the analytic situation profoundly and makes it highly inadvisable to construe bank credit on the model of existing funds’ being withdrawn from previous uses by an entirely imaginary act of saving and then lent out by their owners. It is much more realistic to say that the banks ‘create credit’, that is, that they create deposits in their act of lending, than to say that they lend the deposits that have been entrusted to them. And the reason for insisting on this is that depositors should not be invested with the insignia of a role which they do not play. The theory to which economists clung so tenaciously makes them out to be savers when they neither save nor intend to do so; it attributes to them an influence on the supply of credit’ which they do not have. The theory of ‘credit creation’ ... brings out the peculiar mechanism of saving and investment that is characteristic of fullfledged capitalist society and the true role of banks in capitalist evolution. ... this theory therefore constitutes a definite advance in analysis.” (Schumpeter 1954, p. 1114)

state that an economy that uses bank money has the same characteristics as a Robinson Crusoe economy, or of a Smith's corn economy or a Böhm-Bawerk fishermen's economy, then it is difficult to understand the reasons for the presence of bank money. In other words, how can we explain the presence of bank money in a barter economy or in an economy in which one good is produced and the saved resources are exchanged *in specie*?²⁹

Keynes and Schumpeter associate with the presence of bank money phenomena that do not occur in an economy that uses money produced through labour. As is known, Schumpeter associates the presence of bank money with a world which does not produce a unique good, a world characterized by innovations spawned by entrepreneurs which might consist in the realization of a new product, the adoption of a new production method, or the opening of new markets. The innovations and the bank credit are the two endogenous factors capable of explaining the principal characteristic that distinguishes a *capitalist economy* from a *pure exchange economy*: change. Schumpeter states that the traditional theory is able to explain only the working of a *pure exchange economy*, and underlines the need to elaborate a new theory that describes the working of a *capitalist economy*, a theory based on a double heresy: "... first to the heresy that money, and then to the second heresy that also other means of payment, perform an essential function, hence that processes in term of means of payment are not merely reflexes of processes in terms of goods." (Schumpeter 1912, p. 95)

This approach has one key point in common with Keynes's insistence about the need to elaborate a theory capable of explaining the working of a *monetary economy*. Keynes (1937a) notes that the traditional theory describes an economy founded on consumption decisions, while a *monetary economy* is an economy characterized by an important quota of investments. And in chapter 12 of the *General Theory*, Keynes describes the investment decisions that characterize a *monetary economy* in similar terms to those used by Schumpeter to describe innovations:

²⁹ Bibow observes: "Starting from an older vision of capital accumulation in corn economies, with a *real* saving fund as the classical source of investment 'finance', loanable funds theorists merely annex hoarding and banks, i.e. *monetary* factors, to the usual corn economy picture. From the loanable funds vision, the 'genuine' saving fund of investment finance may be either augmented or diminished by either one of two 'monetary' funds, namely hoarding/dishoarding and credit expansion/contraction. Keynes was at pains to point out that the augmented corn vision had outlived its time..." (Bibow 2001, 609)

“Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the goodwill of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence.” (Keynes 1936, p. 150)

The characteristics of the Keynesian entrepreneur that carries out investments under the impulse of *animal spirits* are analogous to those of the Schumpeterian entrepreneur who introduces the innovations; in both cases these decisions are taken in conditions of uncertainty. (On this point see: Bertocco 2007, 2009). Of course, it would be excessive to claim that the LFT describes an economy based only on consumption decisions; what divides the LFT and Keynes and Schumpeter is the definition of the characteristics of investment decisions. In Smith’s corn economy or in Böhm-Bawerk fishermen’s economy the phenomenon of investment is independent of the presence of bank money and consists in removing from consumption a part of the resources already produced in order to use them for the expansion of the future production owing to the productivity of the earth, in the case of Smith, or the productivity of capital constituted by boats, in the case of Böhm-Bawerk. In the economies described by Keynes and Schumpeter, investment decisions are not determined by saving decisions but by the availability of bank money that allows the entrepreneurs to express a demand for resources necessary to realize not a greater quantity of the sole good produced, but new goods, or to open new markets.

Moreover, the other element that distinguishes the investments that characterise the *monetary economy* described by Keynes is the fact that they are closely associated with the dimension of uncertainty.³⁰ Of course even in the case of an economy that produces just one good, we can assume that an entrepreneur is not able to predict in probabilistic terms the future results of his decisions. This situation arises due to extra-economic factors such as unfavourable climatic conditions that ruin the harvest, or social-political events such as

³⁰ “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).

the break-out of a war, and so forth. What distinguishes the investments that are made in a *monetary economy* is the fact that the impossibility of predicting their results in probabilistic terms is due to factors of an economic nature. In an economy in which just one good is produced the entrepreneurs are sure they will sell everything they produce. This is not the case when we consider innovations which give rise for example, to the production of new goods; the entrepreneur who make a new good is not at all sure if he will be able to sell everything he produces because the innovations change the existing world and this makes it very difficult to forecast the reaction of consumers to the new proposal.

We can therefore conclude that the fundamental structural changes that Keynes associates with the presence of bank money are the presence of a consistent investment flow, and the fluctuations of the aggregate demand due to the instability of investments.

3.2.2 Credit market and money market.

As we have seen, in addressing Ohlin's criticism Keynes recognizes that banks create money to satisfy the demand for liquidity from firms. In this way, Keynes departs from the framework of *The General Theory* in which the quantity of money is determined by the monetary authorities and is independent of demand; therefore, we find ourselves dealing with the problem of establishing if and how to render coherent these two ways to specify the money supply. Furthermore, we must note that when he introduces the *finance motive*, Keynes uses a unique concept, the demand for money, 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.

I think that one solution which would make it possible to overcome these difficulties would be to specify two distinct markets: the money market and the credit market.³¹ The specification of the credit market and of the money market makes it possible to describe the behaviour of firms that get into debt with the banks separately from that of wealth owners, and to show that the explicit consideration of the role of banks in the process of money creation does not imply abandoning the liquidity preference theory. Besides this solution also makes it possible to get around an important limit of the liquidity preference theory. In fact, Keynes considers the interest rate as a premium: "...for parting with control over the money in exchange for debt for a stated period of time." (Keynes 1936, p. 353) He thus defines the phenomenon of credit by assuming that the agents who need liquidity turn to the wealth owners, who sell their liquidity for a premium constituted by the interest rate. The wealth owners are the only agents that can offer credit since it is assumed that the quantity of money is exogenously given and is held by the wealth owners; however, this is a very questionable way to define the credit phenomenon as it is excluded that the liquidity demand from debtors can be met by banks through the creation of new money.

The specification of the credit market allows us to emphasise 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; (b) who, when they obtain the cash, undertake to pay it back at a fixed future date, and (c) do not get into debt to expand their money holdings, but to finance the purchase of capital goods. 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; the money market is made up of stock variables.³²

³¹ 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).

³² We can observe that the specification of the two markets of money and credit is coherent with Robertson's criticism of the way in which Keynes specifies money: "A common sense account [of an expansion initiated by the monetary authority] may be given as follows: The authority operates by handing out money, partly to persons who, at a lower rate of interest... are desirous of *holding* more money in lieu of income-yielding assets, partly to persons who, at a lower interest rate, see a prospect of *using* more money profitably in their

There is a link between the flow variables that characterize the credit market and the stock variables that make up the money market; this link can be defined by distinguishing between two phases in the money creation process. 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. The money created by banks to finance firms must be accumulated by someone; 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 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.

We can describe the process of money creation through the following macroeconomic model which describes a system composed of five markets: money, which corresponds to bank deposits; monetary base; bank credit; government bonds and commodities.³³ We can represent the credit market and the goods market using the following equations:

$$r_l = (1+q)r^* \quad (1)$$

$$I = I(\pi^e; r_l) \quad (2)$$

$$\Delta L = I \quad (3)$$

$$Y = Y(I; G; s) \quad (4)$$

Equation 1) introduces the typical assumption of the endogenous money theory according to which banks set the interest rate on loans r_l by applying a markup on the official discount rate exogenously set by the monetary authority. Firms define the desired

businesses. Both of the classes distinguished above are caught, so to speak, in the act of acquiring more money as result of the fall in the rate of interest. But it is evident that in the case of the second class productivity conditions, as embodied, if we like, in a curve of declining 'marginal efficiency of capital' are exercising a dominant influence upon their actions... A formula which obscures this by lumping together in the same portmanteau those who desire to *hold* more money and those who desire to *use* it does not seem to me helpful towards clarity of thought." (Robertson 1936, pp.176-7)

³³ The structure of this model is consistent with: Howells (1995), Arestis and Howells (1996, 1999), Lavoie (1999); see also: Bertocco (2005).

investments (I) according to their expectations of profits π^e and the loan rate (eq. 2). We assume that once the interest rate on loans has been set, the banks meet firms' demand for credit to finance the desired investments (eq. 3). Equation 4) determines the level of income Y as a function of investment, public spending G, and the propensity to save s. This first block of four equations determine: r_l ; I; ΔL ; Y. The level of investment spending depends on the decisions of the monetary authorities and of the banks which determine the interest rate and the amount of credit.

The specification of the money market allows us to define under which conditions the wealth owners are willing to accumulate the money created by the banks:

$$5) \Delta D = \Delta R + \Delta L$$

$$6) \Delta R = q_k \Delta D$$

$$7) \Delta R = \Delta BM$$

$$8) M = M_{t-1} + \Delta D$$

$$9) M = f(W; r_D; r_b)$$

$$10) W = W_{t-1} + S(Y)$$

Equation 5) determines the deposit flow ΔD on the base of the banks' budget constraint. ΔR represents the amount of the required reserves (eq. 6); equation 7) determines the monetary base flow ΔBM created by the monetary authorities to meet the demand from banks. Equation 8) determines the stock of money that corresponds to the stock existing at the beginning of the period M_{t-1} to which is added the flow of deposits created in the current period. Equation 9) describes the money demand function that depends on the stock of wealth W, the rate on deposits r_D which is assumed given, and the rate on bonds r_b . Finally, equation 10) determines the value of the stock of wealth as a sum of the stock existing at the beginning of the period W_{t-1} and the saving flow $S(Y)$ that is registered in the course of the period. The equations 5-10 determine the unknowns: ΔD , ΔR , ΔBM , r_b , M, W.

The model shows that when two distinct money and credit markets are specified, there are two distinct functions of money and credit supply, and that the presence of a perfectly elastic credit supply function does not imply the presence of a horizontal money supply function. In fact, the model shows that in correspondence with a perfectly elastic function of credit supply, the money supply as determined on the basis of the banks' account identity, is independent with respect to the money demand function. As a matter of fact,

equations 5), 6) and 8) determine the money stock as a function of the credit granted by banks: the money supply is thus an independent variable with respect to the money demand represented by equation 9) that, given the money stock, determines the level of the bond rate r_b as a function of the liquidity preference of wealth owners. (See: Lavoie 1996; Arestis and Howells 1996; Howells 1995).

We can observe that the specification of the two phases of the money creation process has important consequences. First, it allows us to modify the money demand function defined by Keynes with the introduction of the *finance motive* that, according to Tsiang, coincides with the demand for loanable funds. In the model that we have specified, it is assumed that the demand for 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 (See: Minsky, 1980, Dalziel 1996, 2001). 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. Replacing equation 5) in section 3.1, the new equation for money demand in terms of flows becomes:

$$5.1) \Delta M_t^d = L(r_t, W_t) - L(r_{t-1}, W_{t-1}) = \Delta H$$

In this way the relation between *planned saving* and money demand described in equation 6) par. 3.1, and hence the link between saving decisions and interest rate, is eliminated. Equation 5.1) defined in terms of flows corresponds to equation 9) defined in terms of stock.

Second, we can observe that the specification of the two phases of the money creation process allows us to elaborate a sound explanation of the principle of effective demand and of the causal relation between investment decisions and saving decisions that characterize

the Keynesian theory. In the first phase, 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. In this phase the causal relation emerges between the investment and saving decisions which is coherent with the analysis of Keynes. In the second phase, the saving flow generated by investment decisions increases the public's wealth, and wealth owners express their decisions about the composition of their wealth; in this phase the conditions that induce wealth owners to absorb the new money produced in the first phase are created. Keynes himself in the *General Theory* describes a two-stages process :

“The notion that the creation of credit by the banking system allows investment to take place to which ‘no genuine saving’ corresponds can only be the result of insulating one of the consequences of the increased bank-credit to the exclusion of the others. If the grant of a bank credit to an entrepreneur additional to the credits already existing allows him to make an addition to current investment which would not have occurred otherwise, incomes will necessarily be increased and a rate which will normally *exceed* the rate of increased investment. Moreover, except in the conditions of full employment, there will be an increase of real income as well as of money-income. The public will exercise ‘a free choice’ as to the proportion in which they divide their increase of income between saving and spending; and it is impossible that the intention of the entrepreneur who has borrowed in order to increase investment can become effective ... at a faster rate than the public decide to increase their savings. Moreover, the savings which result from this decision are just as genuine as any other savings. No one can be compelled to own the additional money corresponding to the new bank-credit, unless he deliberately prefers to hold more money rather than some other form of wealth. Yet employment, incomes and prices cannot help moving in such a way that in the new situation someone does choose to hold the additional money.” (Keynes 1936, pp. 82-3)³⁴

4. Bank money and Say's Law.

Keynes states, as we have seen, that in a *monetary economy* Say's Law does not apply, and he justifies this conclusion in two different ways. In the preparatory works for the *General Theory* he highlights that the accumulation of money that is not produced through labour determines a fall in aggregate demand and therefore in income and employment.

³⁴The model presented has the objective of illustrating the features of the money and credit market and is very simplified; it envisages firms constantly getting into debt, to which the accumulation of wealth by households corresponds and it does not consider the phase of repayment of loans and the consequences of the failure to repay loans, issues that are at the centre of the analysis carried out by Minsky (1975, 1980, 1986).

Instead, in the *General Theory* Keynes uses the presence of money to show that the rate of interest may assume a value that is incompatible with the full employment equilibrium. The thesis upheld in this last section is that these two explanations are both limited and that the explicit consideration of the problem of investment decisions financing as well as of the money creation process carried out by banks, allows us to highlight a sounder explanation of the reasons why in a *monetary economy* Say's Law does not apply.

The first explanation according to which in a fiat money world an increase in the demand for money causes a drop in effective demand and thus a rise in unemployment, has been used by Keynesians to explain the presence of involuntary unemployment.³⁵ This explanation stresses that if a part of the monetary income received by agents is accumulated rather than spent, effective demand will be unable to absorb all of the aggregate output. It is of course true that in a world in which wages are paid in money, workers' decisions to use part of their incomes to increase the money stock does not generate effective demand. This statement does not, however, constitute a satisfactory explanation of why the presence of a fiat money eliminates the conditions on which Say's Law rests. This explanation overlooks the fact that the new money accumulated by those who decide not to spend all their income must have been created by some agent. It is therefore necessary to specify the mechanisms through which the new money accumulated by savers is created. If we should find that the creation of new money results in an increase in aggregate demand capable of offsetting the lower demand for goods induced by agents'

³⁵ Davidson (1994, p. 95), for example, writes: 'suppose because the future suddenly appears more uncertain, people decide to buy fewer space vehicles (automobiles) to transport themselves geographically and instead demand more time vehicles to convey their purchasing power to an unspecified future time to meet possible liquidity needs. The decreased demand for space vehicles causes unemployment in the economy's auto factories. The increased demand for liquidity does not induce an offsetting increase in employment in the production of money or any good producible in the private sector. Of course, if peanuts were money ... then unemployment in the auto industry would be offset by increased employment in the peanut farms.... Uncertainty and unwillingness to commit earned income to current purchases of producibles (a process that the layperson terms savings) will cause unemployment, if, *and only if*, the object of the savers' desire is a resting place for their savings that is non producible and not readily substitutable for producibles—even if prices are flexible.' Likewise, Kregel (1980, p. 43) states that: 'in a monetary production economy ... when incomes are paid in terms of money, income will represent demand for either current output or stores of value. The use of income to demand "money" as a store of value, however, is not an *effective demand* (for labor), because it does not lead to the expectation of future sales of producibles goods, and this does not create the *expectation* of income.'

saving decisions, then this explanation should be questioned. In fact, if we consider the process of bank money creation described in the previous pages, we must conclude that the money accumulated by savers was created by the banks to finance firms' investment decisions.

The explanation of money non-neutrality based on the liquidity preference theory appears to be flawed too; this explanation is based on the assumption that the monetary authorities set the money stock exogenously. In a world where bank money is used, the monetary authorities directly set the interest rate at which they finance the banking system; we can assume that this reinforces their capacity to influence the interest rate level which conditions the firms' investment decisions. This affirmation is coherent with the decisions made in recent years by the monetary authorities of the industrialised countries. They have abandoned the control of monetary aggregates and instead target short-term interest rates. (see, for example: Leiderman and Svensson (1995), Bank of England (1999); Mishkin (1999), Romer (2000), Woodford (2003), Bindseil (2004), Fullwiler(2006), Nishiyama (2007)). We can maintain that the fact that the monetary authorities can set the short-term interest rate at any level desired, even at a rate close to zero, affects households' liquidity preference and the long-term interest rates and makes it more difficult to assume that unemployment can be attributed to the effects of liquidity preference on long-term interest rates. In other words, we can assume that the expectations regarding future interest rate values are influenced by the value of r^* set by the monetary authorities (see, for example: Wray 2006, p. 274). It is therefore difficult to assume that the presence of unemployment is due to the liquidity preference that determines a value of the interest rate higher than the one coherent with full employment.

We can formulate a different explanation for the reasons why in a monetary economy that uses bank money Say's Law cannot be applied. If the concepts of saving and investment are introduced we must conclude that the validity of Say's law depends on the presence of a mechanism capable of ensuring the realisation of a flow of demand for investment good coherent with the full employment income. According to the LFT this mechanism is the interest rate, but this mechanism works only if we suppose that the credit supply is determined by saving decisions. The presence of bank money eliminates the relation between saving decision and credit supply because credit supply consists of bank money, and in this case the Say's law cannot be applied.

In order to illustrate this statement we can suppose that there exists a value of the interest rate so low to cause a flow of demand for investment goods coherent with the full

employment income. In the world described by the LFT when the interest rate assumes that value, there will be a flow of credit supply, determined by savings decisions, which is equal to the flow of investment coherent with the full employment income. In this case Say's Law is satisfied and banks are only intermediaries which lend what is lent to them by savers; the production decisions determine the level of aggregate demand and saving decisions determine the level of investments. We can explain this point starting from the Wicksellian concept of natural rate of interest; as we have seen, the LFT states that when banks fix the rate of interest of money at a value that equals the natural rate of money, the presence of bank money does not alter the economic equilibrium. (Wicksell 1898, p. 84)

But, if we assume, following Keynes and Wicksell, that the object of the credit is money created by banks and not by saved resources, then we must conclude that the credit supply doesn't depend on saving decisions but on bank decisions; in fact, banks do not know the amount of saving that households are prepared to realize at that rate of interest, so there is no reason why they should be willing to offer an amount of credit equal to the saving flows that families would be prepared to realize at that rate of interest and full employment income. We have to conclude that even if the interest rate on money assumes the value that cause a flow of investment coherent with the full employment income, we cannot say that the full employment income will be realized. In fact, the flow of investment does not depend only on the interest rate, but it also depends on banks decisions which are not conditioned by saving decisions because there is no market in which a given saving flow compatible with the full-employment income, determines an equivalent flow of investment.

As a matter of fact, we can assume that once they have fixed the rate of interest on money, the banks are not necessarily willing to satisfy the whole credit demand from firms; banks may decide to satisfy only a part of the credit demand, that is, they may decide to ration credit because, for example, they may view the prospects of a given investment project in a less optimistic light than the entrepreneurs. In this case Say's law cannot be applied; the level of income depends on the effective demand and the Keynesian inversion of the causal relation between savings and credit works. This bank's behaviour can be explained by the presence of uncertainty. In condition of uncertainty we may suppose that banks and entrepreneurs have different expectations about the future results of the same investment projects; banks may decide to satisfy only a part of the credit demand, to ration credit, because, for example, they may view the prospects of a given investment project in a less optimistic light than the entrepreneurs. The presence of uncertainty is an

important element which distinguishes Keynes's *monetary economy* from the economic system described by Wicksell and the supporters of the LFT. The contents of section 3.2.1 allows us to associate the presence of uncertainty with the presence of bank money. (On this point see: Bertocco 2009)

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*.

In this paper it has been maintained that the arguments used by Keynes to respond to Ohlin make it possible to explain structural changes that distinguish a *monetary economy* from a *real exchange economy*. In particular, they allow us to explain that the presence of bank money: a) changes the meaning of the concepts of consumption, saving and credit compared to the type of economy described by the LFT; b) it allows us to highlight the phenomena of investment and innovation; c) makes it possible to specify the reasons why in a *monetary economy* Say's Law does not apply. In the paper the advisability of distinguishing the credit market from the money market is underlined; this permits us to reformulate the money demand function in such a way as to show the inconsistency of Tsiang's criticism of the concept of 'finance'.

The view presented in this paper challenges the proposal put forward by Leijonhufvud (1981) to integrate 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 entail more rapid growth of the wealth of Nations, not higher unemployment. It makes sense for governments bent on growth to encourage savings” (Leijonhufvud, 1981, p. 196)

In the preceding pages we have shown that the credit supply and investment decisions are not influenced by saving decisions but by the decisions of banks and the financial system; in a *monetary economy* credit supply and investment decisions are independent of saving decisions.

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