

ENDOGENOUS MONEY, BANKS, AND THE REVIVAL OF LIQUIDITY PREFERENCE

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1 - Introduction

A number of endogenous money theorists are taking a renewed interest in liquidity preference theory and in particular in the liquidity preference of banks. Although Post-Keynesians initially turned to other Keynesian concepts, such as the finance motive, to construct a theory of endogenous money. Liquidity preference can explain a number of points of that theory including the behavior of households with regard to money and the behavior of banks with regard to credit.

Is this a renewal of interest in liquidity preference as set out in the *General Theory* or is it something different? Are households' liquidity preference and banks' liquidity preference consistent with the conception of endogenous money?

Section 2 looks at the liquidity preference theory developed by Keynes¹ in the *General Theory* so as to measure subsequent changes in this concept. We emphasize how liquidity preference was supplanted by concepts justifying the endogenous nature of money and how it can be reincorporated into the theory of endogenous money. Section 3 examines the liquidity preference of banks which some commentators claim is related to Keynes's concept of liquidity preference. We question whether this is legitimate and try to show that banks' liquidity preference in fact encompasses other aspects of Keynes's theory of money. Section 4 compares and contrasts the liquidity preference of households and of banks. The overall picture of behavior with regard to liquidity will allow us to reconcile the concepts of endogenous money and liquidity preference.

2 - Keynes's liquidity preference theory

Before scrutinizing banks' liquidity preference let us first delimit the concept of liquidity preference in the narrow sense defined by Keynes. We will then be able to gage just how faithful recent developments of liquidity preference have remained to the initial concept and to examine how the endogenous theory of money has positioned itself in reaction to Keynes's demand theory of money. Recent debate about liquidity preference has often been organized around the endogenous theory of money. Although endogenous money theorists initially disregarded liquidity preference theory a number of them have subsequently attempted to include it in the theory. Such inclusion entails a

¹ Here, unless otherwise specified, liquidity preference is taken to mean households' liquidity preference.

change in the concept of liquidity preference and focusing on certain aspects of it, and even extending it to banks.

2.1. - *The traditional theory of liquidity preference*

By setting out liquidity preference as defined by Keynes we can measure how much the concept has changed. Initially the corner stone of liquidity preference was uncertainty. Keynes set out three motives for holding money by way of explanation of how demand for money was structured.

What is unusual about this concept is that Keynes's overall scheme is clearly macroeconomic whereas microeconomic arguments are used to explain liquidity preference; it is the behavior of economic agents that underpins this theory of demand for money.

The theoretical context that Keynes constructs and describes is profoundly marked by the uncertainty that economic agents feel in what is by definition an uncertain environment. Keynes incorporates historical time into the argument and opts for a dynamic rather than a static mode of analysis. When they come to make decisions, such as whether or not to make an investment, entrepreneurs are confronted with the question of time and therefore of short- and long-term uncertainty. Any investment decision is itself dependent on two variables that in turn involve uncertainty: the marginal efficiency of capital and the interest rate.

Consumers too feel uncertainty. For one thing, they are in an uncertain environment: marginal propensity to consume may be affected by unpredictable changes in tax policy, by differences between future and current income, or by the value of capital. *Keynes makes allowance for the effects of unpredictable variations and of forecasts on economic computations.* In addition, economic agents, whether entrepreneurs or consumers, feel uncertainty. At this point Keynes remarks that agents resort to a means of reducing this feeling of uncertainty in the form of contracts. For entrepreneurs, the contract is a way of considering that the present state of affairs will obtain in the future. It may be that faith in the contract, as a long-term forecast, is rather limited (Keynes, 1936, pp. 148-153). As economic agents invariably operate within an uncertain environment, they will feel less uncertain. Liquidity preference theory can be understood in this uncertain context, as holding money is one way of guarding against uncertainty. This is so because money is a bridge between the present and the future².

Keynes therefore constructed a demand theory of money based on an understanding of the behavior of economic agents. The study of why people hold money involves analyzing liquidity preference as liquidity is an essential feature of money.

Liquidity-preference is a potentiality or functional tendency, which fixes the quantity of money which the public will hold when the rate of interest is given; so that if r is the rate of interest, M the quantity of money and L the function of liquidity-preference, we have $M = L(r)$.

² For the importance of money essentially flows from its being a link between the present and the future (Keynes, 1936, p. 293).

This is where, and how, the quantity of money enters into the economic scheme (Keynes, 1936, p. 168).

Liquidity functions are designed to include the behavior of individuals, L_1 accounting for the cash holdings that agents hope to use for their future spending and to guard against the uncertainty of the future and L_2 accounting for uncertainty about the interest rate³. This behavior toward money is categorized into three possible reactions, three motives that prompt the individual to hold money or not:

- (i) the transactions-motive, i.e. the need of cash for current transaction of personal and business exchanges;⁴
- (ii) the precautionary-motive, i.e. the desire for security as to the future cash equivalent of a certain proportion of total resources;⁵
- and (iii) the speculative-motive, i.e. the object of securing profit from knowing better than the market what the future will bring forth⁶ (Keynes, 1936, p. 170).

These motives are based on expectations, income, and the rate of interest. They are at one and the same time the result of economic activity and related to economic data. The behavior of economic agents may be taken as an aggregate and it is likely that Keynes intends liquidity functions to be taken as a whole as he refers to the "public" rather than of the "agent", although this alters neither the method or its outcome. Cash holdings are idle for individuals in microeconomic terms⁷.

Liquidity preference theory therefore remains a theory of allocation of money, as it indicates how agents perceive the demand for money. Money as cash holdings allow the agent to respond to all motives of demand for liquidity and to face up to uncertainty. Of all the forms of stores of value (real assets, financial assets, or cash assets) money is the one that can be used most effectively to make choices in time and space⁸.

2.2. - Liquidity preference neglected by endogenous money theory

Liquidity preference is a theory of money allocation that helps us to understand how economic agents perceive the demand for money. The Post-Keynesians, however, emphasized the shortcomings of liquidity preference theory as a theory of money. They drew on Keynes's *Treatise on Money*⁹ and his

³ L_1 is an increasing function of income as it results from the demand for money for the transactionary and precautionary motives. L_2 is a decreasing function of the interest rate as it results from demand for money for the speculative motive.

⁴ This motive is really two separate motives: the income-motive, corresponding to demand for money as a function of income and the time between it coming in and going out, and the business-motive, corresponding to demand for money by firms as a function of current income (production) and the time between incurring expenses and collecting the proceeds of sales.

⁵ Liquidity preference for the precautionary motive is different from saving, which is the left-over of income.

⁶ The speculative motive, which also expresses a fear of the future, consists in a comparison with the interest rate so as to maintain the level of earnings.

⁷ Léonard and Norel (1991, p. 155).

⁸ See the properties of money in Keynes (1936, pp. 229-234).

⁹ Keynes (1930).

papers on the finance motive¹⁰ to go beyond the *General Theory*¹¹ and to serve as a foundation for their demand theory of money which differs in its principle from liquidity preference theory. The exposition of the theory of endogenous money will serve as a framework for analysis of liquidity preference in section 4.

So as to grasp the importance of this separation and the construction of endogenous money theory, the theoretical conditions should be clarified. These consist of two points: (i) the distinction between savings and money, and (ii) the dominant role of the entrepreneur, of production, and of the way it is financed. To do this Keynes identifies the two functions of banks by virtue of the distinction between savings and liquidity. These two functions are financial intermediation and money creation¹².

Keynes describes two ways in which money is created: active and passive creation, which are dependent on the form of demand for money. Money is created actively when firms apply for credit from banks, which create money. The second mode of creation stems from surplus deposits which the banks recycle among each other. Keynes first clarifies his conception of credit. For him, it is important to look at demand for money as such, not at borrowing¹³, moving away from the theory of loanable funds. This conception has far-reaching implications for banks and we shall return to this in the next section. Here, it is noteworthy that Keynes ties together investment, credit, and monetary demand through firms and banks:

But if decisions are (e.g.) increasing, the extra finance involved will constitute an additional demand of money (Keynes, 1937b, p. 209).

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, 1937a, p. 217).

Investment by the entrepreneur requires a prior demand for money. A project is financed because banks supply credit to start production; banks are the starting point of the production process, as Post-Keynesians were to argue. Money incorporated within the production system is endogenous. Now, as Wells comments:

A motive [the finance motive] which Davidson's pioneering studies (1965, 1972) made clear apart from and in addition to the transactions, precautionary and speculative motives for demanding money (Wells, 1981, p. 587).

¹⁰ Keynes (1937a, 1937b, 1938, 1939).

¹¹ In some respects, dealt with extensively elsewhere, the Post-Keynesians' neglect of liquidity preference looks like criticism. For example, the consequences of liquidity preference for determining the interest rate are clearly criticized and dismissed. The same is true of the conceptions underlying the *General Theory* and liquidity preference as to the nature of money, the money supply, and the role of the central bank, these conceptions being superseded *de facto* by Post-Keynesian ideas.

¹² The distinction between liquidity and saving implicitly determines the two functions of banks. The first is readily identifiable as financial intermediation and the control of savings. The second relates to the control of cash deposits. The issue of how they are created and how they relate to output is raised (Keynes, 1930, p. 27, Ch. 2).

¹³ For it is concerned with changes in the demand for bank borrowing, whereas I am concerned with changes in the demand of money (Keynes 1937b, p. 207).

This motive supplements the other three liquidity preference motives, although it does not generate any specific amount in terms of cash holdings. Cash holding for the finance motive is compounded with that engendered for the transactions motive. However, the effect of the finance motive on the analysis of cash holding is of little importance; all that matters are the consequences of its presence, the motives behind it. What needs to be understood is how demand for money and credit are involved in the production process.

For Post-Keynesians, the finance motive alone explains the demand for credit, which is the basis of money creation, and the relations between firms and banks. The other motives for holding money described in liquidity preference theory provide no explanation about the creation of money and the production process. Now, the Post-Keynesians set out to explain where money comes from as it is money that allows production to be implemented. The entrepreneur uses it to finance output and to pay his employees. Commercial banks provide credit, which they create in part or in full. Money is endogenous in that it results from demand within the economic system itself and not from the volition of some external institution.

Goux lists the characteristics of this money by identifying a number of common theoretical points (Goux, 1996, pp. 72-73): money is integrated by virtue of production, the creation of new debts gives rise to the creation of money, money is a social convention (just like the interest rate), money is a flow, money is endogenous, potentially created and destroyed. The mechanism of supply of credit money is the same for all Post-Keynesians: demand determines the amount of credit, loans make deposits, and deposits make resources.

Although Post-Keynesians have become involved in many debates about the money supply, there is a common theoretical corpus¹⁴ attempting to define the mechanisms by which money is created. However, other discussions about the demand of money and liquidity preference have also arisen.

2.3. - Liquidity preference, uncertainty, and Post-Keynesian monetary theory

Liquidity preference reappears in the context of endogenous money when the Post-Keynesians come to make allowance for uncertainty. Returning to the Keynesian principle whereby money is a connection between the present and the future, the Post-Keynesians observe that money affects decisions about production as it is a suitable tool for combating uncertainty. Given the need for

¹⁴ First, banks respond to the demand for loans and not to a demand for deposits. Since the demand for loans, at a given level of interest rates, collateral requirements, and the like is determined by prices and output, loans (and deposits) are endogenously determined. We also agree that loans and deposits are different things and that, while deposits are held by the mass of the population, loans are demanded by a subset of deposit holders acting from different motives. We agree, too, that the role of the central bank is to set the lender-of-last-resort rate and that banks then set their loan (deposit) rates by a markup (discount) on this rate. Banks meet all loan demands that satisfy their prevailing collateral requirements and the central bank reserves. Deposits are universally acceptable as a medium of exchange. Finally, we both recognize the elementary point that when individuals exchange deposits for other assets, this merely redistributes deposits; the aggregate volume only changes when there is a corresponding change in the aggregate of loans (Howells, 1997, p. 429).

forward planning of production in a monetary economy, money is present in the entrepreneur's calculations from the outset and allows him to forecast interest rates and spending. Likewise, the decisions that banks make are affected by uncertainty. Banks adjust the terms for granting credit in line with their expectations. Money exists because it is a bulwark against uncertainty allowing economic agents to fulfill their expectations. Its existence is related to the behavior and reactions of economic agents. Money is held because of uncertainty and it reduces the impression of uncertainty, as uncertainty creates the need for money and holding money is a way of arming oneself against uncertainty.

The importance of uncertainty affects the Post-Keynesian view of the functions of money.¹⁵ This approach is adopted more specifically by the *Structuralists*¹⁶ or the liquidity preference school. They set about reinterpreting the use that agents make of money.

(1) The complex division of labour and ramified interdependence-via-exchange that characterise a capitalist economy are unthinkable without money as a universal medium of exchange [...].

(2) Further, money as universal medium of exchange in spot transactions is not adequate in itself. Production takes time, and the capitalist who would undertake a given production process needs financing to bridge the gap between his initial purchases of means of production and the eventual realisation of sale revenue (A. Cottrell, 1994, p. 592).

The fact that almost every society employs some money is in itself a response to uncertainty. Denominating contracts in an intermediate commodity, money, allows a sharing of uncertainty between the buyer and the seller (S.C. Dow, 1993, p. 19).

This takes us back in fact to a definition of the functions of money dependent on liquidity preference theory. The store of value function of money explains how uncertainty justifies the precautionary motive for holding money.

Analysis of uncertainty is informative about the significance ascribed to the study of liquidity. While Davidson concentrates on the precautionary motive, other *Structuralists* extend their theory of credit money to explain the speculative motive.

Credit is created not only to finance productive investment but also to finance speculation (S.C. Dow, 1996, p. 503).

This approach is not neutral for the conception of endogenous money. The analysis of liquidity preference as demand for money by households does not seem to square with the theory of endogenous money, which is based on the demand for money by firms through bank credit. This issue is addressed in the final section.

¹⁵ From this point of view, Wray's works are somewhat atypical as he concentrates on money as a unit of account rather than as a store of value and engages in lengthy developments of money as a form of debt (Wray, 1990).

¹⁶This is probably the most prolific strand in Post-Keynesian thought with its many representatives including V. Chick, T. Palley, and P. Davidson.

Through Davidson we have examined how endogenous money theorists interpret uncertainty. We shall see later that the different interpretations of uncertainty and therefore of liquidity lead to contrasting conclusions:

There is no shortage of theories of liquidity preference that lay claim to a Keynesian parentage. I consider three here, those of Tobin (1958), Davidson (1988) and Makowski (1989), concentrating on the referents of the theory in each case, what uncertainty and liquidity are taken to be, and on the way uncertainty is represented analytically. Tobin's aptly titled 'Liquidity Preference as Behaviour Towards Risk' remains the received view on Keynesian liquidity preference. Liquidity, for Tobin, is synonymous with cash [...]. Davidson is concerned to highlight the use of money and money contracts as a means of 'getting by' and facilitating economic activity in a world of uncertainty [...]. Makowski [...] defines uncertainty as 'risk plus the possibility of learning' (Runde, 1994, pp. 137-138).

But before examining this point, we must first look at what makes up banks' liquidity preference so as to measure the consequences of such a view of money.

3 - Banks' liquidity preference and its sources in Keynes's writings

The concept of liquidity preference developed by the *General Theory* has been extended to banks. This reflects the intention to include banks in the analytical framework of the *General Theory* and more specifically to study the microeconomic behavior of banks and the macroeconomic impact of that behavior. More generally, close scrutiny of the role played by banks allows us to inquire into the connection between the way banks grant credit and the endogenous nature of money.

We will look at whether banks' liquidity preference is truly a new concept or whether it "merely" brings together under the same heading factors that were already to be found in Keynes's writings. We will thus bring out the connections between banks' liquidity preference as defined by the Post-Keynesians and other concepts defined by Keynes in the *Treatise on Money* and the *General Theory*.

3.1 - Banks' liquidity preference

We approach banks' liquidity preference through the study of how banks manage two major risks: the risks of illiquidity and insolvency. We show the connections between managing these two risks and rationing bank credit. We work with the definition of liquidity preference given by Le Héron, who considers that banks' liquidity preference consists in guarding against the risk of insufficient liquidity and the risk of insolvency of the bank.

Commercial banks' liquidity preference is aimed at reducing the two major microeconomic risks related to their activity:

- A crisis of liquidity specific to banks' conversion activity, that is, to the fact that banks' monetary liabilities are highly liquid compared with their assets. Any massive demand for money to be repaid to another bank may cause the bank to fail for insufficient liquidity as its assets cannot be mobilized swiftly enough.

- A crisis of solvency if the bank as a business concern is not cost-effective enough and its assets are not of sufficient value compared with its liabilities, leading to bankruptcy (Le Héron, 2001, p. 10).

The illiquidity risk

Poor management of the illiquidity risk may lead the bank to run short of liquidity, or even to bankruptcy, if it cannot meet its liquid commitments toward other banks. This will lead to very strict rationing of credit which may have devastating effects for economic activity.

- The Post-Keynesian model of bank behavior¹⁷

Management of this risk can be studied by using a Post-Keynesian model of bank behavior. For example, Dymski attempts to explain how banks manage this risk in an uncertain environment by using a model similar to that developed by Tobin in 1982. Within this analytical framework, so as to avoid finding themselves faced with a shortage of liquidity, banks must anticipate the volume of future deposits available to them before they grant loans.

Thus banks choose to create a certain volume of credit on the basis of estimates of their future liquidity

Bank loan rate and volume decisions in the loan period are based partly on assessments of the availability of banking system liquidity in the adjustment period; in effect, expected liquidity considerations influence current credit-creation activities. Second, as noted, banks may be unable to meet all loan-contract obligations if the banking system is faced with a shortage of liquidity in the adjustment period (Dymski, 1988, p. 517).

Adjustments that banks must make in the future also affect economic activity, particularly when banks' forecasts of their future liquidity have been overly optimistic.

[...] dual banks are susceptible to sustained disequilibria, and the adjustment behavior of dual banks will be among the causes of upturns and downturns (Dymski, 1988, p. 501).

The forecast of future liquidity determines banks' decisions as to whether or not to grant credit and may give rise to credit rationing.

Not only are the bank's functions interdependent: they may conflict. The more credit banks create to satisfy loan demand, the fewer funds are available for redistribution to meet depositor demands for liquidity (Dymski, 1988, p. 516).

¹⁷ The expression is borrowed from Dymski (1988).

Dymski essentially analyzes the way in which the risk of illiquidity is managed by forecasting the level of future deposits available to the bank. Another approach is for banks to manage their risk of illiquidity by managing their assets and liabilities.

Banks' liquidity preference is expressed by their intention to reduce uncertainty and so by a specific composition of their balance sheets (Le Héron, 2001, p. 11).

It must be remembered that banks hold highly liquid deposits and must grant loans thereby restricting their liquidity. More specifically, they may decide to finance firms through the financial markets instead of doing so directly. This strategy allows them to reduce their exposure to the risk of illiquidity as securities can be more readily made liquid. However, banks must forecast changes in the market value of such securities, fluctuations which are subject to uncertainty just like future bank liquidity is.

- Real time and uncertainty: the problem of evaluating the bank's future liquidity

Let us further emphasize that Dymski introduces real time and uncertainty into the model proposed by Tobin. These additional points, Dymski argues, allow the construction of a Post-Keynesian model of bank behavior. The new assumptions mean that it is impossible for banks to determine *ex ante* any point of equilibrium for granting credit and allocating deposits.

But as agents cannot coordinate their actions in advance, some banks may have difficulties in performing their supply of liquidity function. In other words, they would then be unable to meet the demand for liquidity from depositors (Dymski, 1988, p. 504).

The uncertainty of the environment in which agents operate explains the existence of future demand for money by bank depositors that banks must endeavor to anticipate.

The stochastic hypothesis is sufficient to give a role to money and to banks: this creates a precautionary demand for liquid reserves - an analytic role for money (Dymski, 1988, p. 504).

The bank must therefore manage its risk of illiquidity over several periods before deciding how much credit to grant. The assumption of radical uncertainty of the environment dear to Post-Keynesians does not mean that agents do not make decisions. Accordingly Dymski considers that in an uncertain environment agents (here banks) make forecasts, with the risk of making mistakes, as if they were in an *ergodic* universe. They put diminishing faith in their forecasts when the economy is moving towards a crisis situation.

As we have just explained, banks' management of the illiquidity risk reflects their need to anticipate demand for deposits by depositors. A further aspect of illiquidity risk management involves the study of relations between banks. In contrast with Tobin's model, this means that deposits are not only financial assets held as protection against uncertainty but are also means of payment. This casts fresh light on relations between banks.

- Illiquidity risk and relations between banks

A bank's illiquidity has several consequences. Dymski emphasizes two factors. First the bank may be unable to meet demand for deposits from depositors for making payments. Dymski speaks of instantaneous conversion of deposits into reserves or into money to explain this phenomenon. In the same way, he highlights what the difficulty is in granting new credits. Le Héron emphasizes the consequence of illiquidity for the bank within the banking system: when the bank is unable to honor its commitments with its counterparts.

Any massive demand for money to be repaid to another bank may cause the bank to fail for insufficient liquidity as its assets cannot be mobilized swiftly enough (Le Héron, 2001, p. 10).

Not only are the bank's functions interdependent: they may conflict. The more credit banks create to satisfy loan demand, the fewer funds are available for redistribution to meet depositor demands for liquidity (Dymski, 1988, p. 516).

Here we must raise two issues that will be examined more closely later. In concentrating on bank behavior, Dymski overlooks the ability of each bank to influence the future liquidity of all economic agents, including banks themselves. In addition, the illiquidity risk is closely bound up with the limits imposed on monetary creation by the central bank. Without these institutional constraints, we might wonder whether banks' liquidity preference is still meaningful, short of restricting illiquidity risk management to a strategy for maximizing bank profits. This would be another matter though. Moreover, in his 1986 paper Le Héron considers that there is no such thing as banks' liquidity preference in the absence of quantitative constraints imposed by the central bank. Yet even in this perspective, the other aspect of banks' liquidity preference, insolvency risk, is paramount, in particular when it comes to explaining credit rationing. However, we will ask to what extent it can be tied in with the actual concept of banks' liquidity preference.

The insolvency risk

When banks grant loans, they must face up to the risk of illiquidity and also manage the insolvency risk. This essentially entails the bank evaluating the projects that it decides to finance directly. It attempts to evaluate the cost-effectiveness of the project, and in particular its associated returns, to determine whether the borrower is able to make the repayments at the due dates. Like all economic agents, the bank operates in an environment governed by radical uncertainty. Nonetheless, as when assessing future liquidity, it can try to make predictions by assuming that the future is to some extent foreseeable.

This was a subject of controversy debated in several papers in the *Journal of Post Keynesian Economics*. The issue was to seek out any common ground among the approaches in terms of asymmetric information of the New Keynesians and the assessment of lender's risk by the bank in an uncertain universe. Dymski views the approaches as consistent in terms of asymmetric information and a Post-Keynesian conception of the role of banks.

Banks may also become insolvent by acquiring unprofitable shares or government bonds; the bank is then exposed to the risks of the market and of income¹⁸.

It should be noticed that the Post-Keynesians include the insolvency risk under the concept of the banks' liquidity preference. If the borrower defaults, the bank may be short of liquidity, after being insolvent; conversely, it may become insolvent or go bankrupt as a result of a liquidity crisis. The interaction of these two risks justifies including the insolvency risk within the banks' liquidity preference theory, although *a priori* it does not relate directly to bank liquidity.

3.2. - Banks' liquidity preference includes points from the *Treatise on Money and the General Theory*

Banks' liquidity preference appears to be an innovative concept at first sight extending to banks the concept of households' liquidity preference as presented by Keynes in the *General Theory*. Without going so far as to deny the relevance of the concept of banks' liquidity preference, we show that it includes points from the *Treatise on Money* and the *General Theory*. The lender-borrower relationship and lending and borrowing risks are related to banks' management of the insolvency risk. The practical problem of the banker is related to illiquidity risk management. However, Keynes does not forget to emphasize the macroeconomic effect of banks' microeconomic behavior.

The lender-borrower relationship in the General Theory and its origins in the Treatise on Money: insolvency risk management

Before granting a loan, banks assess the borrower's creditworthiness and the cost-effectiveness of the project to be funded. This assessment is related to insolvency risk management, which is an integral part of the concept of banks' liquidity preference.

In his *Treatise on Money*, Keynes observes that banks rely in part on their relationship with the borrower to decide whether or not to grant the loan. Banks choose which potential borrowers will secure credit on the basis of their standing with their banker. A subjective element is introduced into the selection of successful and unsuccessful applicants which increases the unsatisfied fringe of borrowers.

[...] the amount lent to any individual being governed not solely by the security and the rate of interest offered, but also by reference to the borrower's purposes and his standing with the bank as a valuable or influential client (Keynes, 1930, p. 327, Ch. 37).

The lender-borrower relationship is then clarified, in chapter 11 of the *General Theory*, by the definition of the two risks that influence the scale of the investment, the borrower risk and the lender risk¹⁹. Borrower risk derives from the borrower's doubts about the actual returns he may get from his investment. Lender risk may arise either from the borrower's deliberate attempt to escape his

¹⁸ See Le Héron (2001, p. 11) for details of these risks and how banks cope with them.

¹⁹ Keynes, 1936, p. 144.

commitment to pay back the loan (termed the moral risk) or from statutory provisions that might release him from his commitment, or from unintentional failure because of disappointed expectations as to returns.

How banks manage these two risks is an integral part of the concept of banks' liquidity preference²⁰. We also show that Keynes deals with the way the bank manages illiquidity risk in the *Treatise on Money* through "the practical problem of the banker" (Keynes, 1930, p. 21, Ch. 2).

The practical problem of the banker: managing the risk of illiquidity

In his *Treatise on Money* Keynes shows that banks have potentially unlimited power to create money. He takes the view that loans make deposits with the result that banks may loan more than their available deposits. However, even when they can create money, banks must manage their liquidity. While, on the one hand, they must grant loans, they must also, on the other hand, take into account the requirements and behavior of depositors and settle their debts with other banks. In other words, to use the terminology employed earlier, banks must manage their illiquidity risk.

As stated in section 2, Keynes distinguishes two ways in which banks make deposits—active and passive creation—with differing impacts on banks' liquidity and financial standing. Banks actively create deposits when they grant loans. They passively create money when they receive liquid resources from depositors or from other banks.

It follows that the rate at which the bank can, with safety, actively create deposits by lending and investing has to be in a proper relation to the rate at which it is passively creating them against the receipt of liquid resources from its depositors. For the latter increase the bank's reserves even if only a part of them is ultimately retained by the bank, whereas the former diminish the reserves even if only a part of them is paid away to the customers of the other banks (Keynes, 1930, pp. 21-22, Ch. 2). Even if actively and passively created deposits appear similar, the consequences of creating them are different for the bank's liquidity and profitability. This asymmetry can be explained as follows:

- when a bank passively creates a deposit, it acquires a claim on another bank which increases its reserves even if some of those reserves are subsequently transferred to other banks: the bank takes no risk in creating deposits in this way.

- contrariwise, when a bank actively creates deposits, if these deposits are transferred to other banks, they give rise to a debt owed to the receiving bank by the issuing bank. The creation of this type of deposit makes the bank creating the deposit more fragile inasmuch as, even if most of the deposits created were to remain with this bank, it would be weakened by them. Conversely, passive creation can only strengthen the bank's standing or at worst keep it unchanged. The amount of credit

²⁰ We may even support Wolfson's view that the importance Keynes ascribes to the lender-borrower relationship is a variation on the asymmetric information approach developed by the New Keynesians. This insight [of Keynes] seems to be at variance with asymmetric information approach: wouldn't the borrower's relationship with the bank be one way of distinguishing between good and bad borrowers, which the bank is supposed to be incapable of doing (Wolfson, 1996, p. 449, footnote)?

that banks can grant without it affecting liquidity is measured in relative terms and not by referring to the amount of deposits they hold.

But it is equally clear that the rate at which an individual bank creates deposits on its own initiative is subject to certain rules and limitations; - it must keep step with the other banks and cannot raise its own deposits relatively to the total deposits out of proportion to its quota of the banking business of the country (Keynes, 1930, pp. 26-27, Ch. 2).

This raises a practical problem that any bankers must attempt to resolve:

Now it is evident that the bank must so conduct its business that these opposite processes can be approximately offset against one another [...]. The practical problem of the banker consists, therefore, in so managing his affairs that his daily accruing assets in the shape of cash and claims shall be as nearly as possible equal to his daily accruing liabilities in these forms (Keynes, 1930, p. 21, Ch. 2).

One point is worth making here even if it is to be dealt with more closely in section 4. Keynes emphasizes the connection between the microeconomy and the macroeconomy. He illustrates the impact of monetary creation by a single bank on the other banks. More generally, he shows that the bank's liquidity is the outcome of the aggregate behavior of the bank in question and of the banking system as a whole.

Every movement forward by an individual bank weakens it [the banking system], but every such movement by one of its neighbour banks strengthens it; so that if all move forward together, no one is weakened on balance (Keynes, 1930, p. 23, Ch. 2).

Thus, the behavior of each bank, even if it cannot be more than one step ahead of the others, will be governed by the average behavior of all banks; yet it is able to contribute its small or large quota to this average.

Thus the behaviour of each bank, though it cannot afford to move more than a step in advance of the others, will be governed by the average behavior of the banks as a whole—to which average, however, it is able to contribute its quota small or large (Keynes, 1930, p. 23, Ch. 2).

The practical problem of the banker is therefore a source of inspiration for Post-Keynesians dealing with illiquidity risk and more generally with banks' liquidity preference. For example, Dymski's model of bank behavior formalizes and extends Keynes's idea in the *Treatise on Money*. Dymski, in particular, emphasizes the incongruence between deposits created and deposits available to the bank in the future. Le Héron concentrates on how debts and claims between banks affect bank liquidity. The macroeconomic consequences of bank behavior seem nonetheless to be underestimated in the concept of banks' liquidity preference. A return to the *Treatise on Money* will allow us to show in section 4 the need to construct a macroeconomic theory of banking.

4 - Banks' liquidity preference, households' liquidity preference, and the endogenous supply of money

As we have seen, banks' liquidity preference brings together a number of elements of the monetary and financial theory developed by Keynes in the *Treatise on Money* and in the *General Theory*. The use of the term liquidity preference when applied to banks may seem surprising. However, the extension of the concept of liquidity preference does have the major advantage of focusing on the role of banks. First we look at the connections and interactions between the two forms of liquidity preference. What is at stake here is the inclusion of the role of banks in the liquidity preference theory set out by Keynes in the *General Theory*. One of the major criticisms leveled at this work is the absence of banks even if Keynes argues that he covered the matter in the *Treatise* and does not go over the same ground in the *General Theory*.

Thereafter, we emphasize the integration of the two forms of liquidity preference in the theory of endogenous money. This will involve asking questions about the compatibility of these two concepts.

4.1. - Households' liquidity preference and banks' liquidity preference contrasted

We shall examine the connections and interactions between banks' liquidity preference and households' liquidity preference. Dymski's Post-Keynesian model of bank behavior forges a first link between these two forms of liquidity preference. Through households' future demand for deposits, households' liquidity preference affects banks' illiquidity risk and the volume of bank credit. We shall draw a distinction between deposits as financial assets and deposits as a means of payment. Wray highlights a second tie between the two forms of liquidity preference in conceiving of households' holding of deposits as unexercised buying power. We shall show that households' liquidity preference affects banks' lending risk through the medium of effective demand.

Portfolio theories from Tobin to Dymski: households' liquidity preference restricts banks' capacity to grant loans

The theory of banks' liquidity preference states that banks must anticipate their future liquidity. In particular, they must anticipate households' liquidity preference or, in other words, households' choices about holding a part of their income in the form of deposits. In view of the way they evaluate future liquidity, they will grant loans or on the contrary restrict credit.

Banks' liquidity preference is closely linked to households' liquidity preference. It follows from this that even households' decisions may in part explain the amount of credit allocated to the economy. Tobin explains that the main limit on granting bank credit lies in the agents' willingness to hold

deposits created by banks. Deposits appear, in this perspective, to be highly liquid financial assets that an agent must be prepared to hold.

A number of Post-Keynesians, notably Dymski (1988), have picked up on Tobin's 1982 model and applied it in an uncertain environment with real time integrated. The conclusions remain similar to those drawn by Tobin.

Not only are the bank's functions interdependent: they may conflict. The more credit banks create to satisfy loan demand, the fewer funds are available for redistribution to meet depositor demands for liquidity (Dymski, 1988, p. 516).

Nonetheless, these changes affect the nature of deposits. Dymski includes in depositors demand for deposits both deposits held as financial assets and deposits required for making payments ("conversion of deposits into money" or "to be converted into reserves") and probably for paying debts between banks.

It therefore seems necessary to make a distinction between the monetary and financial aspect of deposits and the motives for creating these deposits. A deposit, before acting as a store of value, is the result of a payment. Could it be, as Tobin suggests, that there are unwanted deposits?

Some economists see a difference between loans granted and deposits. If loans make deposits in accordance with the principle of endogenous money, the forms of demand they express are different, as the motives for contracting loans and the motives for holding deposits do not relate to the same economic agents. They make a distinction between demand for credit on one side and the desire to hold money which is materialized by the holding of deposits on the other. Such deposits, resulting from the spending of loans, vary with the agents' portfolio decisions.

The (flow) demand for new bank lending, on which the endogeneity case focuses, originates with one set of agents while the (new) deposits that are created by this lending have to be held by a different set. The first set ('deficit unit') is a subset of the latter ('wealthholders'). For the former, what is involved is an income-expenditure decision; for the latter it is a portfolio consideration (Arestis & Howells, pp. 540-541).

Here, by virtue of its functions as a store of value and of its link with uncertainty, money is a factor in households' portfolio decisions (Rochon, 1999, p. 217). Money is conceived of as one of a number of financial assets. Households look to hold their savings and their wealth in less liquid assets than money in line with the principle of liquidity preference.

In section 2 we recalled what households' liquidity preference entailed. Post-Keynesians have adopted this approach emphasizing and enhancing certain of these aspects so as to include it in their banking theory. Here, demand for money or deposits is the decisive factor behind bank liquidity and therefore behind the amount of credit they can allocate.

Connections between liquidity preference and evaluation of the lender's risk

The portfolio allocation models we have just referred to consider that an increase in households' liquidity preference allows banks to create more loans. In effect, the deposits that banks create will be held by depositors. The bank will not find itself short of liquidity.

Wray (1992) also discusses the connection between the liquidity preferences of households and of banks in the broader framework of macroeconomics. He reverses the relationship between the liquidity preferences of banks and households.

[...] rising liquidity preference will be associated with reductions of planned spending, with a shift of public preferences toward the most liquid bank liabilities, and with rising reserve requirements coupled with a reserve drain at the individual bank level (Wray, 1992, p. 303).

Indeed, increased preference for liquidity by households goes hand in hand with increased risks for lender and borrower. The bank is therefore impelled not to grant any more loans. Such a change in the behavior of households goes along with a downturn in consumption and a fall in effective demand. The economy takes a turn for the worse and lender and borrower risks increase.

However, Wray studies the relationship between the two liquidity preferences in a macroeconomic context and at a different level of analysis from Tobin and from Dymski, who both take a microeconomic view, which accounts for their apparent differences. Here Wray is more concerned about the question of bank insolvency while Dymski and Tobin concentrate on the issue of bank illiquidity. Wray works with the conception of a deposit as a means of paying for consumption. This approach makes it possible to allow for the relations between deposits, production -through the principle of effective demand-, and consumption.

4.2. - Liquidity preferences in the context of endogenous money

Thus, in what has been said, difficulties have appeared when it comes to including households' and banks' liquidity preferences within the framework of endogenous money, and difficulties in accommodating the two forms of liquidity preference. We shall investigate whether such integration can be achieved and how. In this we work on the principles of Post-Keynesian theory whereby the central bank does not control the money supply mechanism. Commercial banks alone have the task of creating money.

Economists dealing with banks' liquidity preference acknowledge the banks ability to create money. Dymski, for instance, accepts the idea that loans make deposits. However, it is future liquidity alone that governs the decisions to grant bank loans. Banks' expectations as to this future liquidity implies that something is known about it. Now, liquidity in the banking system is not a given but an end-result, the outcome of money creation by all the banks²¹. Dymski proposes what is essentially a

²¹ Considering deposits as a given magnitude is obviously a simplification, which is legitimate in itself, but liable to sever any connection between microeconomic and macroeconomic theories of banking (Graziani, 1990, p. 60).

microeconomic theory of bank behavior, which Post-Keynesians consider inconsistent with the theory of endogenous money. Nonetheless, it seems difficult to forego a theory of bank behavior under the endogenous money approach, as money is created by banks²². Graziani's attempt (1990) to construct a "macroeconomic theory of banking" is part of this approach. Banks' liquidity preference may be rendered consistent with the theory of endogenous money when allowance is made for the connection between micro- and macroeconomic theories of banking.

Post-Keynesians have emphasized the shortcomings of households' liquidity preference theory as a theory of money. Now, as we saw in section 2, while they abandoned this concept for another definition of the demand for money with the finance motive, they continue to use the idea of liquidity preference. However, this is a contradiction in appearance only. Demand for money for the finance motive and for liquidity preference cover quite separate cases. The former concerns firms' demand for credit from banks and falls within the sphere of production. The latter relates to the demand for liquidity (for cash holdings), for "public" securities and is bound up with the financial sphere of the economy.

The finance motive, however, focused on the demand for money not for a stock of assets but a business demand for a flow of credit (Rousseas, 1986, p. 200).

Thus, liquidity preference is perfectly consistent and does not interfere with the process of creating endogenous money as long as the distinction is drawn between the demand for money, that is, the finance motive, and the demand for liquidity, that is, liquidity preference.

Finally, it now seems that the connection between the liquidity preference of banks and of households can be reconciled with the theory of endogenous money. The role of uncertainty in Post-Keynesian analysis rehabilitates the liquidity preference approach as an explanatory factor for holding money. By extension, the liquidity preference of households, expressed through deposits, is of primary significance. Banks must anticipate it to guard against the risk of illiquidity. By making allowance for the difference between liquidity and money, if money is created *ex nihilo*, in macroeconomics loans depend on demand from firms and deposits are the consequence of loans granted by banks. It is perfectly coherent to consider that the money supply responds to an endogenous process through the creation of loans and that banks, individually, have to face up to difficulties in managing this.

The decision of households with respect to liquidity preference is not between saving and consumption, but rather on how to divide their saving between hoards and other financial assets. [...] Liquidity preference arises therefore out of the creation of income. It is thus a decision on how best to allocate saving between hoards and other assets. It is a portfolio decision (Rochon, 1999, 292).

Thus liquidity preference analysis can be included within the framework of endogenous money. The most commonly used approach in this respect is to describe the relationship between commercial

²² This is strange, since post-Keynesians have placed considerable emphasis on the credit creation role of banks, and on the fact that commercial banks hold the key to economic expansion. Yet, they have largely ignored the microeconomic behavior of banks (Rochon, 1999, p. 215).

banks and the central bank²³. The second approach to endogenous money allows us to remove the ambiguity about liquidity and saving by making a distinction between liquidity and money. This approach favors the connection between money and production by emphasizing the role of loans to firms and the payment of wages²⁴. Here, money, liquidity, saving, and consumption are included in an overall production process with separate logical stages.

5 - Conclusion

Many recent papers by Post-Keynesians have addressed the theory of liquidity preference. The renewed interest in this concept stems from the intensification and enhancement of a number of points about households' liquidity preference theory such as the specific conception of households deposits. However, renewed interest also derives from the generalization of liquidity preference to banks. Although this interest for liquidity preference may seem on the face of it to be in contradiction with the theory of endogenous money, we have seen that under certain circumstances this is not so.

The distinction between liquidity and money allows us to reconcile the two concepts within a more general theory of money and finance and so to reconcile a theory of liquidity and a theory of money. Now, the definition of the difference between money and liquidity, or the lack of any such definition, underlies the debates among Post-Keynesians. The disagreements about the determination of the interest rate, about the supply of money, and about the role of the central bank stem explicitly or implicitly from disagreements about the distinction between liquidity and money.

²³ Endogenous money theory can be interpreted at two levels: that of commercial banks and that of central banks. At each level, supply can be said to be adapted to demand, to the price set (Lavoie, 1985, pp. 171-172). See also Rochon (this volume).

²⁴ See Lavoie (1996).

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