Loanable Funds, Liquidity Preference: Structure, Past and Present

by

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Abstract

We appraise the Robertson-Keynes discussion from the structural axis of exogeneity/endogeneity of the interest rate. Rapprochement is indicated by consideration of the liquidity preference of banks.

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1. Introduction

Keynes challenged the theory that the rate of interest was a price that brought into equality the demand for and the supply of bonds. According to the classicals, the rate of interest would move so that the supply of saving equaled investment demand. Keynes argued, instead, that the equilibrium of the classical theory determined the level of activity, leaving the rate of interest a variable without a theory. His theory of liquidity preference offered more than determination, was yet another device to introduce the noncalculable nature of probabilities into the writing of demand and supply functions. Indeed, the innovation started even earlier than the speculative motive for holding money. Although the specification of both the transactions and precautionary motives are believed to be free of Keynes’ "dark forces of time and ignorance," according to the cognoscenti the nonspecifiable nature of the demand for money actually began with the precautionary component and percolated into the speculative motive (Panico, 2008). For Richard Kahn and others, precautionary demand arose from financial operators that were highly uncertain about the future course of the rate of interest.

The division between Keynes and his contemporaries has mutated into a difference of opinion between followers of Keynes today. Put simply, either the rate of interest is endogenous à la the theory of liquidity preference and money is exogenous, or money is endogenous, leaving the rate of interest a control variable. Radcliffe, of the famous Committee Report that went under his name, developed the idea of liquidity preference as applying to a spectrum of assets. Its many dimensions could not be captured in a suitable metric (Dow, 1989). Hence, monetary policy should be directed at manipulating interest rate changes that altered the state of liquidity rather than controlling monetary aggregates. Nicholas Kaldor is credited with articulating the endogenous money approach in its modern guise (Dow, 1989). The money supply is determined by the private sector. If the banking system responds to the demand for credit, given interest rates set by the

* The inputs of an anonymous reviewer are gratefully acknowledged. I, alone, retain full responsibility for the final product.
as to supply the required reserves so as not to disrupt the process does not require a theory of liquidity preference. Some post Keynesians lament the jettisoning of the endogenous money of the Treatise on Money where the interest rate was exogenous (Bell, 2003).

On the other hand, others hold that liquidity preference and endogenous money are not mutually inconsistent when careful attention is paid to the distinction between the stock demand for money and the flow demand for credit. By considering the liquidity preference of banks the supply of credit can be seen to be a function of liquidity preference (Dow, 1989; Bell 2003). We strengthen this claim in what follows using the methodology of causal ordering. In the sections and subsections that end with Keynes’ theory of liquidity preference we show that the rate of interest is an exogenous variable. It is endogenised only, as conjectured, when the liquidity preference of banks schedule is included. Thereafter, we address the normative question: Should the interest rate, indeed, be an exogenous variable? A final section concludes.

2. The interest rate is everywhere an exogenous variable

2.1 Real theories
The following description is drawn from Laurence Harris, (1985). According to the pre-Keynes Quantity Theory tradition, in the long run, changes in the quantity of money cause an equiproportionate change in the price level. Money does not impact the interest rate which is determined by real forces. The supply of bonds, $B^S$, arises from firms’ investment plans. Thus, the desired supply of bonds and planned investment are identical. The demand for bonds, $B^D$, depends upon the propensity to save of consumers. The notional demand for bonds, in like manner, is the same as planned saving. The interest rate is determined from the following equilibrium condition.

$$B^D = B^S$$

The condition is equivalent to
In causal terms, the model can be depicted in the following fashion, where \( i \) stands for the interest rate.

\[
i = r
\]

\[
B^D = B^D (r)
\]

\[
B^S = B^S (r)
\]

\[
B^D = B^S = B^*
\]

We have a *self-contained* or *complete structure*, a system of four variables in four equations (Simon, 1997, p.15). A self-contained equilibrium structure is a system of \( n \) simultaneous equations in \( n \) variables. Given a self-contained system \( S \), if there is a proper subset \( s \) of \( S \) that is also self-contained and that does not contain a proper self-contained subset, \( s \) is called a *minimal complete set*. Each equation is a *mechanism*. Arraying the variables along a row, and the four mechanisms above in columns, we have the following matrix,

\[
\begin{array}{cccc}
  r & B^D & B^S & B^* \\
 1 & 1 & 0 & 0 & 0 \\
 2 & 0 & 1 & 0 & 0 \\
 3 & 0 & 0 & 1 & 0 \\
 4 & 0 & 0 & 0 & 1 \\
\end{array}
\]

The first equation is an *exogenous equation* (Simon, 1997, p.51). The interest rate is an exogenous variable that is an input into the next two equations. The equation is a *minimally self-contained subsystem of zero order* (Simon, 1997, p.15). That is to say, it is self-contained and does not contain a self-contained proper set. Each of the demand function, the supply function, and the equilibrium condition that follow are a *derived structure of first order*. 

\[ S = I \]
The sources of causal asymmetry include \textit{manipulability} and \textit{prepotency} (Simon, 1997, p. 21). When the interest rate can be manipulated by, say the monetary authorities, the variable can be regarded as exogenous to the system. Manipulability is close to \textit{control} (Katzner, 1983, p.128). An important trait of systems is the possibility of steering mechanisms to a particular output. The only way to do so is the manipulability of one or more inputs. For the purpose, the set of definitions would need to be extended to include a criterion function that evaluates the performance of the system according to some measure like social welfare. Prepotency emerges when the size and power of one variable far exceeds the dimensions of another variable. In the present instance, structural power is at play in the following deontology (Hall, 2008). While money emerges endogenously in the creation of credit by commercial banks, money is supplied exogenously by the central bank. A hieratic structural binary relationship \textit{money issuer/money user} is generated. A leader-follower connection emerges from the simultaneous equations. This deontic power is operationalised by setting the price in the interbank market and expanding (or contracting) the supply of money so that the money market is in equilibrium at that price. In this instance, the structural binary subjectivity revealed is \textit{price setter/price taker}. Clearly, prepotency must be handled carefully. In a market system with powerful private interests, it might be that the central bank does no more than react to or endorse private signals. Or, the central banks might decline the demand for reserves coming from private banks. In a situation of tight money, the structural binary relationship between the central banks and commercial banks is \textit{credit refuser/credit supplicant}.

Alternatively, we can express the above system as a self-contained equilibrium structure of two equilibrium equations in two variables, $B^*$ and $r$. The interest rate appears in the clearing condition for the bond market. For any arbitrary choice of $r$, the equation can be solved for $B^*$.

\[
 r \rightarrow B^* 
\]
efficiency of money in terms of itself was unique in being independent of its quantity (Keynes, 1973B). It differed from other capital assets in this respect. This was the legacy of the Quantity Theory. The money rate was indeterminate because the demand schedule was a function of given supplies. Keynes was concerned with changes in the demand for money as well as the demand for bank borrowing. Ex ante investment may have to be provisioned for financially before the plans are on stream and the matching saving occurs. The bridge between the decision to invest and the resultant savings might be provided by the bond market and banks. However, the stock of cash the businessman enters the period with represents a special demand for money, what Bertil Ohlin, (1973), called the ‘finance’ required by the inducement to invest. This ‘finance’ though, is not the only source of the demand for money.

The distinction between stocks and flows was an early bone of contention. It turns out that the debate was unnecessary. Both theories must be evaluated in a unit period. The period is defined as one in which the stock of money changes hands once in exchange for all goods and services (Tsiang, 2008). That is, all gross incomes and proceeds of sales of goods and services that accrue in the current period cannot be spent until the next period. The definition includes the funds realised from the sales of financial assets. Idle balances in this context is the stock of money possessed by the representative agent at the start of the period as well as the stock she can borrow from the money market. Therefore, we introduce time subscripts to our variables above to denote the fact that they are flow magnitudes and that we are operating in the traditional period. Now, the sources of loanable funds comprise planned saving and any increase in the stock of money in the period. That is,

$$B_t^D = S_t + \Delta M^S$$

In like manner, the flow supply of bonds arises from the demand for finance plus the demand for loans to accumulate money balances. Formally,
Equilibrium in the bond market is assured by

\[ S_t + \Delta M^S = I_t + \Delta M^D \]

The system is a *mixed structure* with equilibrium conditions including difference terms. Since money, in difference terms, does not depend on any other variable in the system, it is exogenous. If we assume that the initial endowment of money in the case of both supply and demand are equal, the flow equilibrium of the loanable funds theory and the stock equilibrium of the liquidity preference theory are equivalent (Tsiang, 2008). The change in the stocks of money represent the adjustments of the previous stocks to their new equilibrium values. Adjustments in stocks are flows. The matter can be put thus, with cs given constants,

\[
\begin{align*}
\Delta M^D &\equiv M_{t+1}^D - M_t = c_1 \\
\Delta M^S &\equiv M_{t+1}^S - M_t = c_2
\end{align*}
\]

Assuming, as usual, the values of the initial conditions, including the value of the money stock at time \( t \), is given, the equations can be solved for all values of the money stock. Thereafter, a demand-equals-supply condition for the money market suggests itself. Denote the equilibrium level of the money stock as \( M^* \). The causal arrows fly as follows.

\[
\begin{align*}
& c_1, M_t \rightarrow M_{t+1}^D \\
& c_2, M_t \rightarrow M_{t+1}^S \\
& M^* \rightarrow S_t + \Delta M^S = I_t + \Delta M^D \rightarrow \begin{cases} S \leftarrow r \\ I \leftarrow r \end{cases}
\end{align*}
\]

Money is exogenous and the interest rate continues to depend on the real forces of productivity and thrift.
For the money market to be in equilibrium, expectations must be such that the investors hold the current offerings of money and bonds willingly, given the structure of interest rates. The complex of rates will be determined by the stock demand for money relative to its stock supply. Given the money supply, the residual that does not satisfy the transactions and precautionary motives gratifies the speculative motive, the stock demand for money. Keynes offered that the demand for money depended on the interest rate for a complex of reasons brought under the rubric of liquidity preference. That is,

\[ \Delta M^D = f(r) \]

and little can be said of the function \( f \). It would violate the economics of Keynes to assume, for instance, that it was linear. It appears that our model here is a minimal complete subset, consisting only of standard initial conditions, with multiple variables, which, in our case are all the state variables (Simon, 1997, p.53). After deleting \( e_2 \) and \( M_t \), the derived structure consists of savings, investment, and money, which are not reducible. Consequently, there is no causal ordering between them. Graphically,

\[ r \rightarrow [M_t, S_t, I_t] \]

Savings, investment, and money are mutually dependent due to some unknown feedback loop between them and there are no simple, acyclic causal relationships connecting them.

### 3.1 The liquidity preference of banks

For Keynes, the rate of interest was determined by the schedule of liquidity preference and the quantity of the liquid medium. At the same time, he appreciated that banks cause lending to come about by modifying the terms of contracts (Keynes, 1973A). For instance, when the quantity of money is increasing, the banks respond by reducing the liquidity premium (or increasing it, depending on conditions) and augmenting/reducing
words, we introduce a supply of liquidity function to market for liquid funds.

\[
\Delta M^D = f(r) \\
\Delta M^s = g(r)
\]

Roy Harrod, (1973), warned Keynes that demand and supply functions might have more than one solution when the nature of the supply function was not known. Yet, if we assume, strongly, that both the functions are invertible, then, for the first time we have a zero-order minimal self-contained subsystem which includes the interest rate.

4. To exogenise or to endogenise?

The determinateness of the interest rate depends on differences or similarities among market participants about the prospects of that variable. The trail of the rate of interest partakes of a bootstraps character. If all investors are of a unanimous opinion about the fate of the variable, it will prevail. The ‘average’ level of the interest rate over the unit period is determined by the elements that affect the ‘common opinion’ about the rate expected to prevail in the future. Chief among these elements is the activities of banks and the monetary authorities (Panico, 2008). Thus, the potential nonlinearities in the demand function above, can be offset by nicely-behaved supply of liquidity on the part of the banks and the monetary authorities delivering a determinate system. In modern terms the absence of variety and homogeneity of response is assured by the general equilibrium approach to macroeconomics. Using a computational version of the textbook analysis of markets, the natural level of employment and a target rate of inflation is calculated. The task of the central banker, then, is to minimise the gap between actual and potential output and ensure, on pain of termination of contract, that the inflation rate hits the target. Current versions of the model do not require money and the authorities must use the interest rate as a signal to steer the economy towards a social optimum. In neoclassical terms the economy is in the neighbourhood of equilibrium. There is no special status to be attributed to the policymakers. They are one among equals in the policy game looked to for their credibility and reputation.
If, however, the terrain on which macroeconomic models are writ is believed to be suffused by novelty and surprise, we must allow for variety and heterogeneity of response. Liquidity preference enters precisely when opinions between the mass of market participants and the banking system diverge (Hawtrey, 1973). The speculative motive originates when, for instance, banks, prompted by signals different from the general public, buy securities on a large scale. People prefer to be liquid when the prospect of a huge capital loss far outweighs the interest receipts. This scenario typically applies when active open market purchases by banks pushes up the prices of bonds to what the average businessman regards as an unacceptable level. The bank may run in an opposite direction to the public siphoning off securities from the market at some price (Bibow, 2006). Indeed, it is only to the extent that the banking system does not meet the requirements of the public will changes in the demands of the latter result in varying security prices. Furthermore, the banking system can even initiate such changes. The liquidity preference mapping for Keynes was neither unique nor stable precisely because it was possible that the state of expectations was generated by wrong signals. Energetic open market operations directed at the longer end of the liquidity spectrum, for instance, could lead to a change in the state of expectations along socially desirable lines. Thereby, the so-called expectations channel (our supply function) could counterbalance any effects on interest rates coming from the liquidity channel (our demand function) (Bibow, 2006).

If the rate of interest were a control variable, it should be socially constructed (Smithin, 2009). Under capitalism, profits are the returns to enterprise, wages the remuneration for work, while the function of the rate of interest is to preserve or enhance the value of accumulated financial capital which includes unspent past profits and wages. In that case, on ethical grounds, the real rate of return for rentiers should be nil. The real value of the existing stock of money representing past effort would be preserved but there would be no increase in real value arising from the mere possession of money. Further accumulation would only come about by fresh enterprise and work. The euthanasia of the rentier is not at stake since it is not the nominal rate of interest that is set to zero. Luigi Pasinetti’s fair rate of interest is a variant. It equals the rate of increase in productivity of the total amount of labour required to produce basic goods and increase productive capacity. The fair rate allows the owners of the existing financial assets a share in the
in productivity. A null real rate would preserve or enhance financial capital. The existing financial stock is regarded as representing the proceeds of past productive activity. Workers and businessmen today are engaged in ongoing production that will accumulate capital tomorrow. In that case, the "fair" rate is arguably superior in preserving the balance between the past, the present, and the future.

5. Conclusion
We evaluate the controversy between the liquidity preference and the loanable funds theories of the determination of the interest rate with structural criteria. The interest rate is (almost) everywhere a monetary variable but should it be endogenous or exogenous? Since the monetary authorities have no small role to play in providing an anchor to the spectrum of interest rates in the economy, should their behaviour be perfectly predictable? Instead, should they exert significant outside control? It would appear that the first stance is dictated by a system in which prices and quantities move as per the dictates of a standard economic model. In that case, the central bank is at most a leader in the macroeconomic game, anchoring expectations toward a desirable social equilibrium. The interest rate along with other rates must be endogenous. However, if the economy is chronically prone to malfunctioning, the planning approach to policymaking comes into its own. The central bank cannot be an insider and must hold the power to control the system. The rate of interest would be but one variable in its armoury.
References


