## THE FINANCIAL SECTOR INFLUENCE ON PORTFOLIO DYNAMICS

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## Abstract

In terms of the undertaken risk in portfolio theory, investors weigh the profitability associated risk when they make a decision on the allocation of investments. Consider developing this theory derivation functions include measuring demand for risk assets through alternative profitability, and profitability expected. A macroeconomic model specific risk measurement requires determination in terms of endogenous variables.

Key words: monetary, currency, return, capital, constraint

It is well known that the balance on goods and services market is not enough to achieve balance throughout the system. IS curve takes into account only pair Y, for example national income and interest rate levels that represent varying sizes for the most important models for goods and services market. Even if the price level remains constant, it needs this other markets to determine Y and r values, and this market is generally considered to be in the money market. System development in this direction is important to pay monetary properties addressed by Tobin in 1969.

In his studies Tobin addressed the essential features of portfolio allocation problem in a deterministic framework and its approach has provided a cornerstone for analyzing financial sector in macroeconomic theory. Suppose in economic practice there are three types of assets: fictional currency, government bonds and physical capital, model specified in the following:

 $\frac{M^{d}}{P} = L (Y, -\pi, r-\pi, r_{k}, \frac{M+B+Pk K}{P})$   $L_{1} > 0, L_{2} > 0, L_{3} < 0, L_{4} < 0, 0 < L_{5} < 1$   $\frac{B^{d}}{P} = J (Y, -\pi, r-\pi, r_{k}, \frac{M+B+Pk K}{P})$   $J_{1} > \leq 0, J_{2} < 0, J_{3} > 0, J_{4} < 0, 0 < J_{5} < 1$ 

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$$\frac{PkK^{d}}{P} = N (Y, -\pi, r-\pi, r_{k}, \frac{M+B+PkK}{P})$$

$$N_{1} \ge 0, N_{2} < 0, N_{3} > 0, N_{4} < 0, 0 < N_{5} < 1$$

$$\frac{M^{d}+B^{d}+PkK^{d}}{P} = \frac{M+B+PkK^{d}}{P} = A$$

$$r_{k} = \frac{PR(\frac{Y}{K})}{Pk}$$

where:

- d index represents the demand;

- rk is the real rate of return on capital;

- R is marginal capital production.

Active demand function is defined in the first two equations above; they depend on

(i) actual outputs;

(ii) real rates of return on monetary, bonds and the equity or  $-\pi$ , r  $-\pi$ and rk;

(iii) real wealth.

The fourth equation is a constraint for the savings, which imposes a restriction on demand for assets underlying demand functions, two of which are independent. A consequence of this restriction is that if two of asset markets are in equilibrium, then the third and the market should be in balance.

In general, the constraint on asset demand functions derives from budgetary constraints at individual specification, as the applied models can be built on continuous or discrete moments, and the model of Tobin addressed when considering continuous time. in this situation, the individual takes no decision to retain existing stocks of assets and the difference between existing stocks of investment assets and the desire of economic agents can be expressed through savings.

The existence of constraints at stock impose these restrictions on partial derivatives of functions active application:

 $\begin{array}{ll} L_i + J_i + N_i = 0, & i = 1,...,4 \\ L_5 + J_5 + N_5 = 1 \end{array}$ 

These additional conditions ensure that any increase in wealth should be allocated to an asset appropriately, on the other hand any increase in demand for an asset due to a change in income or real rates of return must be matched by a reduction in another asset demand.

In addition there is equality above these two assumptions:

- Between the demands for each asset and the actual rate of return on asset there is a direct influence and an inverse one with the profitability rates of other assets;

- Capital is not a substitute for broad money transactions so that N1 = 0, L1 = -J1. in other words, any increase in currency demand generated by higher revenue and requested for the purpose of trading is matched by reducing immediate bond holdings and not by equity holdings adjustment.

Last assumption refers to:

- Asset demand functions are homogeneous first-degree regarding income and wealth.

The equation  $\mathbf{r}_{k} = \frac{PR\left(\frac{Y}{K}\right)}{Pk}$  refers to the actual rate of return on

capital units (rk) and marginal physical product that underpins capital (R), generating income stream. Under steady market conditions the return rate is equal to the ratio of profitability and physical unit price of the product. By eliminating linear variable dependent on the market, for example the capital and replacing A and Pk, the financial sector can be expressed using two equations:

$$\frac{M}{P} = L\left[Y, -\pi, r-\pi, r_k, \frac{M+B}{P} + \frac{RK}{rk}\right]$$
$$\frac{B}{P} = J\left[Y, -\pi, r-\pi, r_k, \frac{M+B}{P} + \frac{RK}{rk}\right]$$

Tobin believes the values of Y, P, M, B and C as given, and the two equations above determine the rates of return r, rk for the two assets. The two equations above are concentrated in the financial sector in the economy. Along with the equation:

$$Y=C (Y-T, r-\pi, \frac{M+B+PkK}{P}) + I(r-\pi) + G$$

These equations determine the results, along with two rates of return r and rk; therefore this system can be thought as an auxiliary of IS-LM model. Starting from the two relationships that describe the financial sector we get the usual specifications of the LM curve. The first one implies that bonds and capital are perfectly interchangeable, in which case the real rates of return for the two assets are the same

 $R_k = r - \pi$ .

The application functions J (.) and N (.) ceases to exist and the restrictions refer to the stock market that implies the existence of an independent asset, which conventionally assume to be money market. Secondly, if the active application depends on the difference between rates of return, then  $(r - \pi) - (-\pi) = r$  and money market equilibrium conditions are reduced to:

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 $\frac{M}{P} = L(Y, r, A)$ 

There are different definitions of nominal money supply, depending on the liquidity of assets included in these aggregates. But as long as the value of M is defined, conventional macroeconomic models usually are considered to be exogenous, it is determined directly by the government, so between the real money supply M/P and low prices reverse there is a connection.

At a first analysis, this relationship can be considered as an appropriate one, but in reality the total nominal money supply is an indirect instrument of monetary policy. There are several variables that include direct monetary control as a monetary base, including cash reserves of the commercial banks, discount rates, and reserve ratio. The monetary base tends to represent a monetary shortterm balance and is controlled via open market operations, where the central bank enters the market for the trading of government securities. The other two instruments of monetary control are used on long term and their adjustment is not made so often. The total supply of money supply can be linked considering that endogenous variable profit maximizing behavior in the case of commercial banks sector.

Thus, money supply is an endogenous factor with a direct connection in relation to the interest rate on the market, r, considering that commercial banks increase their loan portfolios to make higher profits and it results from an increase in interest rates on granted loans. Considering the money supply M as exogenous variable, steady above relationship defines the LM curve. Taking into account the time value of P, it determines values (Y, r) leading to the money market balance. By deriving the equation M / P = L (Y, r, A) depending on the Y, we get:



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An increase in the interest rate leads to a decrease in the demand for money because the population tends to keep interest bearing assets. With a fixed money supply, balance can be maintained only in situations where the population is stimulated to trade more on the open market, and this is possible only in conditions where there is an increase in revenues. On the other hand, the higher the interest rate is, the speculative balances are minimized. in this case, any increase in the level of income must be an increase in the interest rate so the required money can be released to cover the needs of trading. On the other hand, in the case of a small value of r, the money supply and the value of bonds can be easily substitutable leading to a demand for elastic money supply.

Finally we conclude that the LM curve position depends on the money supply M and price level P. An increase in the money supply or a decrease in the level of prices will lead to a shift on the LM curve to the right; a reduction in the money supply or an increase in the price level will lead to a shift reverse curve.

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