"The Neglected Market"

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INTRODUCTION

Patinkin [1965] has demonstrated that economic analysis benefits greatly if we view macroeconomic problems by concentrating on markets and excess supplies and demands in those markets. He pays little attention to the flows of saving and investment. In fact, he states [1965, p. 270]:

> We have throughout this book deliberately avoided the concept "savings" and its familiar accompaniment, the "savings = investment" condition. This decision has been based on the fact that such a concept is out of place in an analytical framework which views the economy as consisting of a number of goods, each with a price, and each with a market. For savings are clearly not a good, they have no price, and they are not themselves transacted on a market.

This paper also focuses on markets. The purpose of this article is to focus on the market for tangible assets, a market which has often been overlooked in the literature on macroeconomic models. The standard IS-LM framework focuses only on three markets: markets for goods, money, and bonds. The goods market is a market for *newly produced* consumption and investment goods (in the sense used by Patinkin [pp. 205–6]). It differs from the market for *existing* goods, or tangible assets (our "neglected market"). In the IS-LM model, there is an implicit bonds-equilibrium curve which goes through the intersection of the IS and LM curves.[1] [Johnson 1972, p. 13.] A special truncated version of Walras's Law holds in this model. [Tucker 1971, 1972] For some macroeconomic problems, the addition of the "neglected market" has little bearing. However, when people change their asset preferences between financial assets (bonds) and tangible assets there are dramatic implications for interest rates and macroeconomic variables generally.[2]

THE NEGLECTED MARKET

According to Rutledge [1981]:

> In addition to owning stocks, bonds, bank accounts, money-market certificates and other *financial assets,* households also own condominiums, land, used cars, gold and countless other *tangible assets.* This stock of existing goods, or tangible assets, has been produced and stockpiled over many years.... To private investors, tangible assets are substitutes, or alternatives, to financial assets.

Accordingly, the IS-LM model may be amended to include a tangible assets market in which i is the implicit yield on intangible assets. The equilibrium conditions for this extended model are:

(1) $$E(y, M_o, r, i) = y \quad \textit{Commodity Market}$$

(2) $$B^d(y, M_o, r, i) = B^s(y, M_o, r, i) \quad \textit{Bond Market}$$

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(3) $M^d(y, M_o, r, i) = M_o$ *Money Market*

(4) $T^d(y, M_o, r, i) = T^s(y, M_o, r, i)$ *Tangible Assets Market*

where y is real income or output; r is the interest rate on bonds; and M_o is the nominal money supply. By Walras's Law, only three of the above equations are mathematically independent. They can be solved for the three endogenous variables, y, r, and i.[3] The price of newly produced goods is assumed to be held constant. The relations of the markets for goods and money to the implicit yield on tangible assets will be clarified shortly.

To understand the appropriateness of including the market for tangible assets in our analysis, suppose people change their preferences in favor of tangible assets and away from bonds.[4] We postulate that the excess supply of bonds is matched by an excess demand for tangible assets; this market is neglected in the IS-LM model. In our extended model, as a result of the change in tastes, the bond interest rate rises. The increased demand for tangible assets leads to a rise in their price (reducing the implicit yield), while the decreased demand for bonds leads to a decrease in the price of of bonds—a rise in the interest rate (the bond interest rate is assumed to be inversely related to the price of bonds).[5] Can the above changes be illustrated in the IS-LM framework?

Consider an amended IS-LM diagram (Figure 1) in which the vertical axis is labeled
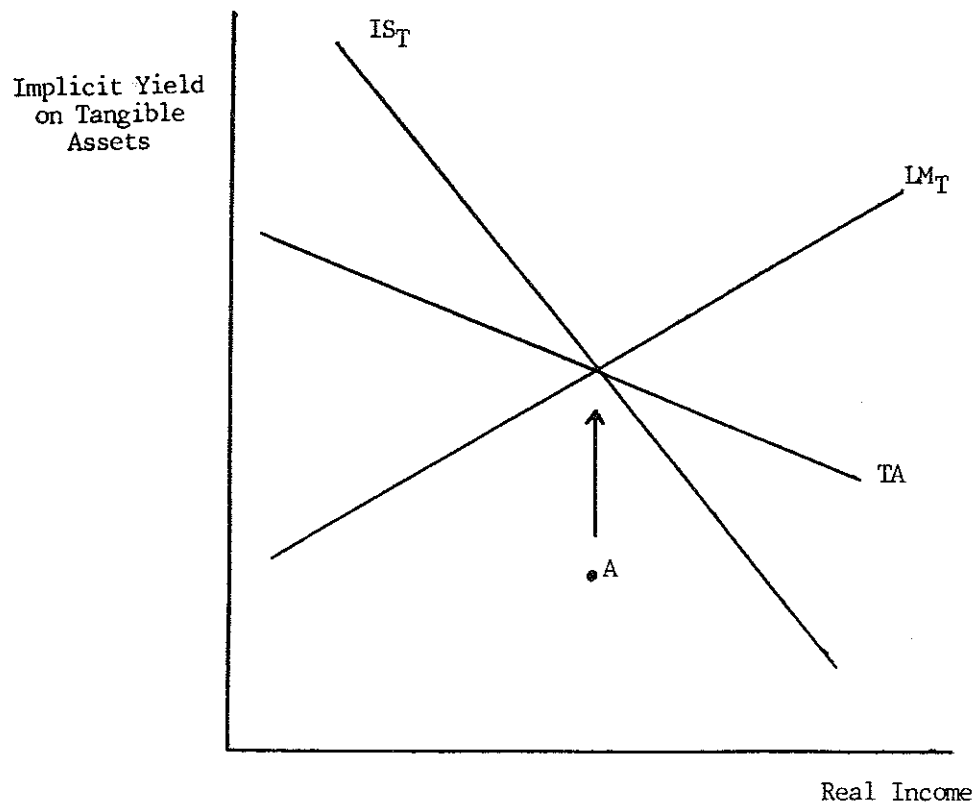

Figure 1. The arrow indicates the direction of movement which might be involved in the re-equilibration of the system (if for some reason it were temporarily stuck at A).

"implicit yield on tangible assets" (and is inversely related to the price of tangible assets). The curve labeled IS_T, in common with the ususal IS curve, has a downward slope since a decrease in the implicit yield on tangible assets (i.e., increase in their price) increases the attractiveness of and therefore demand for newly produced goods. Thus, real income must rise to maintain equilibrium between the demand for newly produced goods and output (real income).[6] The curve labeled LM_T, in common with the LM curve in the more conventional diagram, has an upward slope, for the opportunity cost of holding money diminishes as the implicit yield on tangible assets decreases. Hence, this lower yield raises money demand; to maintain money-market equilibrium real income must decrease. More specifically, an increase in the asset demand for money requires that money be released from transaction balances if money-market equilibrium is to obtain. The release occurs through a fall in real income. The TA curve represents equilibrium in the tangible assets market. Its slope is likely to be negative because an increase in real income increases the demand for tangible assets, necessitating a decrease in the implicit yield on tangible assets to maintain market equilibrium. In general equilibrium the TA curve must pass through the intersection of the IS_T and LM_T curves. It follows from the diagram that a lower implicit yield on tangible assets (for example point A), *ceteris paribus*, implies an excess demand for both money and newly produced goods.

Consider next Figure 2, which displays the more conventional IS and LM curves, with the bond interest rate measured on the vertical axis. Following Patinkin [pp. 331–2], a horizontal bonds-equilibrium curve BB may be drawn. The assumed increase in demand for tangible assets serves to lower the implicit yield on tangible assets, which causes both the IS and LM curves to shift up in Figure 2 to IS' and LM'. That is, as the TA curve shifts down to pass through point A in Figure 1, the implicit excess demand for goods and money will induce adjustments in the goods and money markets.[7] Taken together, Figures 1 and 2 illustrate the integration of the neglected market into the IS-LM model. A major point here is that the positions of both the IS and LM curves are directly affected by changes in the price of tangible assets. The curves are drawn so that real income remains the same. Changes in real income could conceivably occur; however, it is not necessary to work through all possible cases to demonstrate our point. The BB curve shifts up in Figure 2 to BB' as TA shifts down in Figure 1 because of the hypothesized decrease in the demand for bonds. In Figure 1, IS_T and LM_T shift down due to the impact of the increase in the bond interest rate.

In summary, adjustments in the market for tangible assets indeed affect the positions of the IS and LM curves of Figure 2. In the new equilibrium, the interest rate on bonds has risen, while the implicit yield on tangible assets has decreased. Note that the shifts of the BB and TA curves would be dampened somewhat by changes in the implicit yield and interest rate in the markets for tangible assets and bonds.[8]

In an inflationary environment, the addition of a tangible assets market into the conventional IS-LM model leads to particularly interesting results. Traditional analysis, unfortunately, is often incomplete in explaining why high nominal interest rates accompany high rates of inflation. Consideration of the market for tangible assets provides a ready explanation. Suppose an increase in the money-supply growth rate leads to inflation or rising inflation. Because many people believe that tangible assets are a hedge against inflation, not only will the price of tangible assets rise, but the initial increase in price may well exceed the inflation rate that accompanies an excess demand for tangible assets. Portfolios are rearranged as bonds become less attractive assets (with prices rising, money is also not attractive). The result is that price rises in the tangible assets market as price falls in the bond market.[9] Hence, the nominal interest rate on bonds rises. The interest rate on bonds may adjust rapidly enough
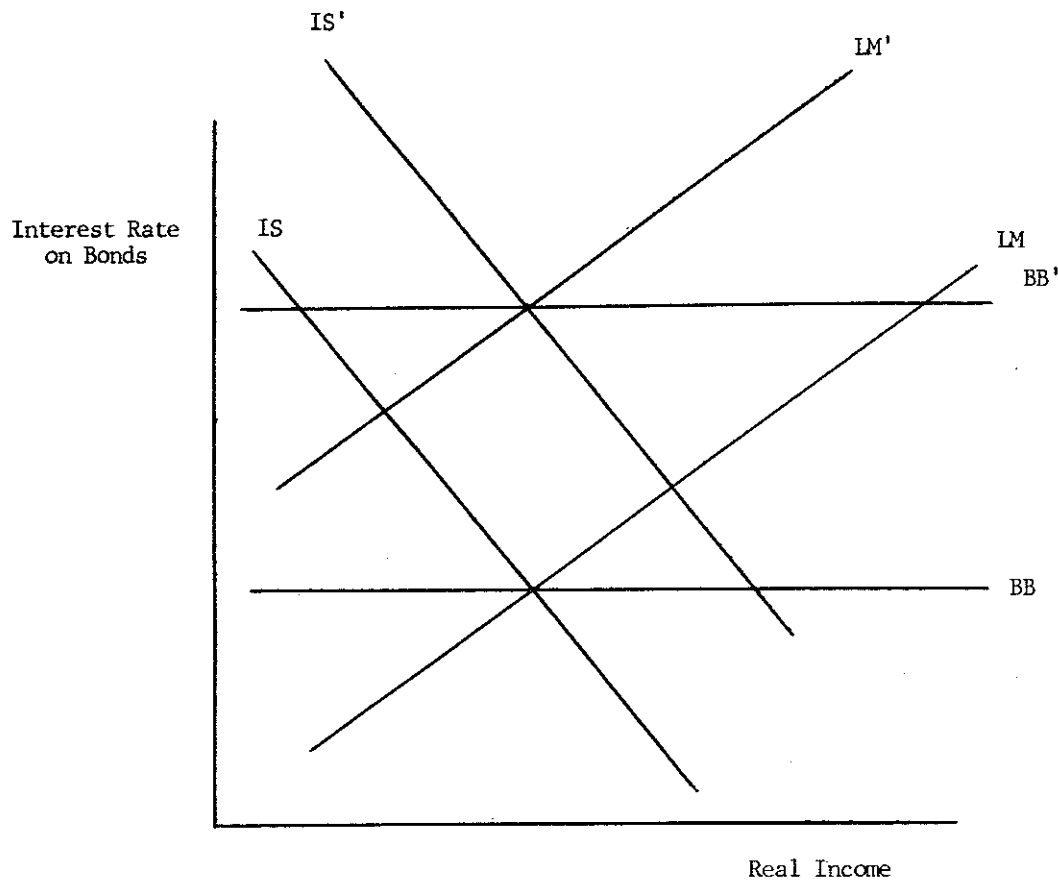
Figure 2.

recession, leading to a decrease in the supply of new bonds. These changes in supply would reinforce the effect of changes in demand on bond prices and hence nominal interest rates.

CONCLUSION

Neglect of the market for tangible assets is partially responsible for the current belief that the enormous government budget deficit will raise nominal interest rates. Yet, an analysis which includes the tangible assets market would bring to the fore the fact that as inflation diminished, the increase in the supply of government bonds has been far outweighed by the increase in the demand for them (along with a corresponding drop in the demand for tangible assets)[10]

Not only does the foregoing analysis have dramatic implications for nominal interest rates, it also makes it apparent that Walras's Law must be extended to include the tangible assets market: the equilibrium condition is that the sum of the excess demands for money, goods, bonds, and tangible assets must be zero. And as we have just argued, the excess demand for (supply of) bonds may very well be matched by an excess supply of (demand for) tangible assets.

FOOTNOTES

*We wish to thank two anonymous referees for their excellent comments. We also acknowledge the help of Dr. Richard Robinson.

1. So far as analysis is conducted within the scope and limits of a comprehensive static full demand-side macroeconomic model, the IS-LM apparatus may be relevant (and is used here). However, we do acknowledge that the supply side of the economy (which might also be affected by conditions in the "neglected market") is left out of our account.
2. We are essentially concerned with the range of assets in which portfolio wealth may be held. Everything depends on the reconstruction of portfolios, under certain conditions, to change the relative importance of bonds, money, and tangible assets. This notion, of course, is not new; the monetarists have made much of it. Hence, this paper develops a point which is quite compatible with the monetarist line of analysis.
3. M_o is assumed to be exogenously determined by the monetary authority.
4. Please note that our model directly applies to the change-of-tastes case. The model would have to be amended in the case of inflation—a case which is considered later in this paper. This would involve the addition of an aggregate supply curve. However, we have chosen to stay within the confines of the IS-LM model. Yet, this does not prevent our theorizing below about what *would* happen in the case of inflation.
5. This may appear to violate the condition that the marginal expected rates of return (MERs) on all assets be equal in equilibrium (making allowance for risk and so forth). However, the original change in tastes disrupts the equality between MERs. The subsequent changes in the interest rate on bonds and in the implicit yield on tangible assets are movements toward satisfying the equal MERs condition. We wish to thank Dr. Leland B. Yeager for focusing our attention on the MERs.
6. Another possible reason for the downward slope of the IS_T curve is that the rising price of tangible assets implies greater wealth for their owners. This wealth effect tends to create a greater demand for newly produced goods. Hence, real income must rise to preserve equilibrium between the demand for newly produced goods and output.
7. It should be borne in mind that the TA curve, like the IS and LM curves, is not a behavioral relation, but rather is a potential equilibrium locus. The change in tastes in favor of tangible assets means that for any given level of real income, a lower implicit yield is consistent with equilibrium in that market. Hence, the TA curve shifts down.
8. That is, the TA curve *initially* shifts so that it passes through a point such as A. As the bond interest rate increases, there will be some feedback on the TA curve, which will begin to shift back up. But

for equilibrium in the bond market to be maintained. In this case, an excess supply of money matches the excess demand for tangible assets.

An opposite sequence occurs when inflation is finally brought under control. As inflation slows, tangible assets become less attractive, while bonds become more so. The result is an excess supply of tangible assets most likely matched by an excess demand for bonds. Thus, the price of tangible assets declines while the price of bonds rises; the nominal interest rate on bonds therefore decreases. (In the case of a slowdown in the inflation rate, there may be a slowdown in the rate of price increase for tangible assets rather than an absolute decline.)

Economists generally accepted that an increase (decrease) in the inflation rate will lead to an increase (decrease) in the nominal interest rate. Unfortunately, the mechanism involved in such changes is rarely spelled out. This article has undertaken to explain this mechanism by focusing on the role of the market for tangible assets. While the focus has primarily been directed to changes in the demand for bonds, holding their supply constant, in reality, changes in the supply of bonds would probably reinforce the arguments already made. That is, as the rate of inflation builds, firms may increase the supply of new bonds to finance an expansion in output and production. On the other hand, the slowing of inflation is often accompanied by

given our postulated change in tastes, the TA curve will, in the final equilibrium, be below its initial position.

9. As inflation occurs, the MER on tangible assets rises (remember these assets are viewed as a good hedge against inflation), while the MER on bonds decreases (at least in *real* terms as inflation erodes away the real value of interest payments). The result is an increase in the demand for tangible assets and a decrease in the demand for bonds. As prices of these assets change accordingly, the interest rate on bonds rises and the implicit yield on tangible assets is lowered in order to restore equal MERs.

10. John Rutledge (1981) correctly predicted the fall in interest rates in 1982. Certainly alternative explanations exist which could account for this decline in nominal interest rates.

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