Some Comments on Professor Ritter's Interpretations of Keynes and Changes in Income Velocity

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Professor Ritter's paper in an earlier issue of this journal (September, 1962) contained several flaws. All were fundamental to his interpretation of the orthodox Keynesian literature, and to some of the conclusions of his analysis. He states that he will deal with the "orthodox Keynesian model", and he cites Professor Hansen and Keynes' General Theory and some related sources. We wish to draw upon these and related sources and fundamental analytical concepts to show that Professor Ritter fails to deal properly with the notion of a safe rate of interest, and the concept of the interest elasticity of the demand for money. Paralleling the discussion of some of these failures, we also wish to allude to the failure to recognize the presence of a structure of interest rates as well as money, credit, capital, and commodity markets in Chapter 17 of Keynes' General Theory and the related literature. Finally, we wish to present an alternative explanation of the data shown by Professor Ritter for the income velocity of money in the U.S.

I. The Safe Rate of Interest and the Financial Markets

In this section, we review some aspects of the liquidity-preference demand for money. These include the rationale underlying the shape of the demand curve and the notion of a so-called "safe" or "normal" rate of interest. In doing this we will make an assignment of probabilities to the curve in order to reveal the flaw in the meaning Professor Ritter attributes to the word "safe" rather than the probability concept as implied by Keynes. The probability notion of a normal rate of interest as outlined below may be applied to a single market such as that for U.S. Government securities or to an entire range of financial markets, including the money, credit, and capital markets.

The curve corresponding to the liquidity-preference demand for money is sketched in Figure 1. The speculative demand for money balances is a de-

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creasing function $f(i)$ of the rate of interest. Several non-competing explanations for the shape of the curve are available. For one, as the rate of interest declines (rises) there is greater and greater (smaller and smaller) likelihood of a decline (rise) in the value of securities and, therefore, an increasing demand for money as a means of avoiding prospective losses and as a means of maintaining liquidity. For another, at higher (lower) rates of interest the payment for parting with money balances is greater (less) and less (more) money balances are held as an asset for speculation and thus the velocity of money balances rises (declines).

Now, in assigning probabilities, let us recognize that in a world where interest rates and security values vary inversely, three possibilities may arise at a given time with respect to future changes in interest rates and therefore security values. The value of the securities may rise ($R$), decline ($D$), or undergo no change ($N$) with reference to prevailing values and interest rates. At any given time, consequently, there is certainty that at least one of these events will occur. That is, the sum of the probabilities for these three outcomes will always sum to one (i.e., $P_D + P_R + P_N = 1$). But individual expectations and/or the aggregate of the individual expectations comprising the market may be thought of as operating in an environment where in the course of time interest rates usually vary over some domain, as from 2.0 per cent to 5.0 per cent in the case of government securities, where the recent past influences prospects and where some level of rates is considered normal or safe. Thus, one could reason that as the rate of interest varied over its historical range from its upper bound to its lower bound, individuals and markets assess probability weights varying from zero to one to the prospect of a decline in security values. Conversely, as the rate varies from its lower bound to its upper bound, the weight for the prospect of a rise in security values should vary from zero to one. And, further, the probability of present rates prevailing in the future should vary from zero at the extremes to some maximum probability in the neighborhood of the normal rate of interest.

In the figure, then, at points $A$, $B$, and so on of equal distance along the curve the subjective probabilities of a rise in value ($P_R$) and a decline in value ($P_D$) decrease and increase respectively in a progressive fashion. In fact, the non-linear shape of the curve is attributed to the progressive nature of the probability of the prospect for a decline in values as one moves downward along the curve, and the progressive nature of the probability of the prospect of a rise in values as one moves upward along the curve. Also note that the probability of no change from the normal rate reaches a maximum at point $C$, since

$$P_N = 1 - (P_R + P_D).$$

At this point, nevertheless, a positive quantity of speculative balances is held.
The motive for holding balances at this point can be due only to uncertainty over the future rate of interest. Further, as the probability of a decline in security values (a rise in values) increases, there is a demand for a larger (smaller) quantity of speculative balances.

\[ \begin{align*} P_D &= 1.0 \\ P_R &= 0.0 \\ P_N &= 0.0 \\ &= 1.0 \end{align*} \]

\[ \begin{align*} P_D &= 0.6 \\ P_R &= 0.1 \\ P_N &= 0.3 \\ &= 1.0 \end{align*} \]

\[ \begin{align*} P_D &= 0.3 \\ P_R &= 0.3 \\ P_N &= 0.4 \\ &= 1.0 \end{align*} \]

\[ \begin{align*} P_D &= 0.1 \\ P_R &= 0.6 \\ P_N &= 0.5 \\ &= 1.0 \end{align*} \]

\[ \begin{align*} P_D &= 1.0 \\ P_R &= 0.0 \\ P_N &= 0.0 \\ &= 1.0 \end{align*} \]

Security prices:
- \( P_D \) is the probability of a decline
- \( P_R \) is the probability of a rise
- \( P_N \) is the probability of no change

Of course, the precise location of the points such as \( A \) and \( E \), where one would subjectively assess the probability of a rise in value at one (i.e., \( P_R = 1.0 \)) and the probability of a rise in value at zero (i.e., \( P_R = 0.0 \)) are not precisely known. These points may lie at extreme distances along the \( i \)-axis and the \( f(i) \)-axis respectively or they may tend to be located about the neighborhood of the normal or safe rate of interest. The point too may change where there is maximum uncertainty about a change in one direction or the other.

In any event, the statement we wish to make is that the so-called safe or normal rate of interest is a matter of probabilities. In applying the curve to the
entire range of financial markets or to particular markets such as the money market or a capital market, the assignment of probabilities for a rise or a fall is independent of whether the particular market happens to be more liquid or less liquid. The assignments of probabilities for changes do not pertain to the extent of the changes as the curve is applied to particular markets. Therefore, it is irrelevant for Professor Ritter to conclude that "the concept of a 'safe yield level is largely irrelevant for Treasury bills and similar money market instruments". It is, on the contrary, applicable to any market where values are likely to change.

Professor Ritter also errs in his view that "the only securities visualized in the Keynesian model are clearly long-term". On the contrary, the notion of the rate of interest is an abstraction, and the abstraction is representative of the level of some structure of rates. In the very short run, in properly functioning financial markets, changes in the so-called riskless element in "the rate" or in any rates of maturities in the structure, may be viewed as shifts in the structure. And these shifts in the structure may be thought of in turn as paralleling changes in the rate on the longer maturities among government bonds, although over a given interval of time some rates may move out of phase with the majority of rates in the structure. In terms of Chapter 17 of the General Theory and of the related literature there is no sufficient reason to suspect that only a long-term government bond market is suggested, as contrasted with the entire range of financial markets.

II. The Development of a Money Market and Interest Elasticity

Professor Ritter outlines the development of an efficient money market in the U.S. and the post-war economies in the management of money balances. He then draws the following conclusions from these developments:

"The two consequences of the development of an efficient money market—namely, the leftward shift in the demand for money and the decline in its interest elasticity—have contradiictory implications for the effectiveness of monetary policy. The former decreases the demand for money throughout the range of interest rates and permits

1 Ritter, op. cit., p. 283.
2 Ibid., p. 283.
ever-higher levels of velocity. The latter, on the other hand, tends to make velocity more stable, less likely to be affected by changes in interest rates so as to offset the intent of the monetary authorities. In the postwar period to date the former effect appears to have dominated the latter.

While the U.S. has developed an efficient money market and while there has been a rapid growth in the means of economizing money balances, there has been no leftward shift in the demand for money as Professor Ritter states. In fact, looking at the corporate sector where the economizing of money balances has been most effective, we still find an increase in the need for money balances. Comparing comparable phases of two post-war business cycles, we find that U.S. corporations held 26.5 and 16.8 billions in money balances and government securities respectively at year-end 1949, as compared with 39.0 and 19.4 billions at year-end 1961. In this important sector, then, the effective demand for money balances increased by about 32 per cent at a time when the demand for highly liquid securities increased by less than half as much. Despite these data, however, there could be a trend factor in the demand for money balances as a result of the development of so-called money substitutes. Even so, this would be a decrease in the rate of the increase in the demand for money as a secular matter and not "a secular decline in the demand for money proper."

Further, in terms of Figure 1, interest elasticity of demand for money balances is defined as

\[ \text{elasticity} = \left| \frac{df(i)}{di} \right| \frac{i}{f(i)} \]

where \( \frac{df(i)}{di} \) is the slope of the function at a point \([i, f(i)]\). Elasticity then is defined at a point and in comparing the elasticity at one point with that at another, one must know the value of the coordinates at the point \([i, f(i)]\) as well as the slope at that point (i.e., \( \frac{df(i)}{di} \)). Even if the shift for money balances over the decade of the 1950's had been to the left, one could not conclude from this information alone that the elasticity of the demand for money balances was less.

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1 Ritter, op. cit., p. 287.
3 Source: U.S. Securities and Exchange Commission.
5 Ibid., p. 286.
III. The Keynesian System, the Role of Time, and Velocity Changes

The Keynesian system consists of several models. The more fundamental of these pertain to the liquidity preference demand for money, the investment demand for instrumental capital goods, and the saving-investment (or aggregate supply, aggregate demand) determination of national income. All, however, are simple systems of equations, and the equilibrium values for all of the variables in the system are simply the result of simultaneous solutions to the equation systems at a moment of time. The reasoning about the slopes and meaning of the curves as defined by the implied or explicitly stated equations of the system is all dependent on conditions prevailing at that time. For example, in reasoning above about the curve for liquidity preference, we noted that a rise (decline) in the rate of interest corresponded to a rise (decline) in velocity. Changes in the system over time, however, come about only in response to changes in the underlying conditions that correspond to the parameters of the equations.

On purely logical grounds, one may arbitrary change certain parameters to show that interest rates and velocity can vary inversely, rather than directly as suggested by the discussion of liquidity preference. Nevertheless, wisdom and experience with respect to the real world must enter into the efforts to make the system simulate real world changes over time. Ritter is entirely correct in this respect:

"It is clear that the usual statement that we should expect interest rates and velocity to move in the same direction comes from the assumption (or observation?) that in the real world it is more likely to be shifts in the investment demand schedule and/or the consumption function that are the active and dominant forces responsible for changes in income rather than shifts in the liquidity preference function." 1

To have thought otherwise is to have misunderstood the Cambridge tradition of comparative statics.

Thus, Professor Ritter is on safe grounds when he attempts to explain post-war increases in the velocity of money in terms of a leftward shift in the speculative demand for money, as he does 2, but his leftward shift does not accord with the data on the effective demand for money as noted above. In a growing economy with rising income and with a demand for balances for speculation and transactions as a positive function of income, it is doubtful that the data would accord with Professor Ritter's conclusion even if he could separate the speculative holdings of money and near-money assets from the purely transactions needs. His errors in the application and interpretation of the models are no fault of the various models.

1 Ibid., p.282.
2 Ibid., p.285.
IV. An Explanation of Velocity Changes

Having been critical of Professor Ritter's explanation of the trend in velocity in the U.S., we should now present an alternative explanation. In this explanation we are quite orthodox.

Table 1
Income Velocity and Postwar Cyclical Peaks
and Troughs in the United States

<table>
<thead>
<tr>
<th>Year and Quarter</th>
<th>(1) GNP (1)</th>
<th>(2) (M^2)</th>
<th>(3) Income Velocity ((1) ÷ (2))</th>
<th>Rate of change in (\nabla_y) per annum (^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948–4 (Peak)</td>
<td>265.9</td>
<td>109.4</td>
<td>2.45</td>
<td>.16</td>
</tr>
<tr>
<td>1949–4 (Trough)</td>
<td>257.0</td>
<td>108.4</td>
<td>2.37</td>
<td>.17</td>
</tr>
<tr>
<td>1953–2 (Peak)</td>
<td>368.8</td>
<td>125.9</td>
<td>2.93</td>
<td>.205</td>
</tr>
<tr>
<td>1954–3 (Trough)</td>
<td>362.0</td>
<td>127.9</td>
<td>2.83</td>
<td>.32</td>
</tr>
<tr>
<td>1957–5 (Peak)</td>
<td>448.5</td>
<td>134.7</td>
<td>3.55</td>
<td>.205</td>
</tr>
<tr>
<td>1958–2 (Trough)</td>
<td>437.2</td>
<td>134.9</td>
<td>3.24</td>
<td>.32</td>
</tr>
<tr>
<td>1960–2 (Peak)</td>
<td>506.4</td>
<td>138.6</td>
<td>3.65</td>
<td></td>
</tr>
<tr>
<td>1961–1 (Trough)</td>
<td>500.8</td>
<td>159.9</td>
<td>5.58</td>
<td></td>
</tr>
<tr>
<td>1961–5 (est.)</td>
<td>555.0</td>
<td>143.0</td>
<td>3.74</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Billions of dollars. Seasonally adjusted annual rates.

\(^2\) Billions of dollars. Demand deposits adjusted plus currency outside banks, seasonally adjusted. Each quarter is an average for the period, computed by averaging four end-of-month figures.

\(^3\) The rate of change in \(\nabla_y\) is computed by taking the change in velocity over each expansion phase, dividing it by the number of quarters in each phase, and multiplying by four to get an annual rate of change.

Professor Ritter apparently limits himself too narrowly to the very short run type of change whereby the strength of the motive for holding money as opposed to bonds and near-money assets varies in response to prospective yield changes (and, therefore, valuation changes) in the bond and money markets. He overlooks completely the broader set of valuation changes that occur over the short cycle in which, for example, bond values and stock values (and,
therefore, bond yields and stock yields) vary inversely. It is in this broader context that we view the switching of preference between two broad sets of assets:

(I) the first set of claims being generally fixed in terms of their maturity value and contractual returns,
(II) the second set serving as a residual claim against income.

In broad outline, the assets contained in these two sets may appear as follows:

| 1. cash |
| 2. near-money assets and bonds |
| 1. stocks |
| 2. instrumental capital |

The switching of preference corresponding to velocity changes in this context, moreover, gives rise to changes in the flow of income—all in phase with the short cycle as outlined by Ritter, and as set forth in summary form in Table 1. In response to a larger flow of prospective absolute returns from assets in the second category, the motive for holding money weakens and the accompanying changes include an increase in the income velocity as we shall show. These same prospects affect adversely the values of assets in the first category, and it is in the switching in response to changes in the strength of the motive for holding or acquiring these two sets of assets that we must look for the explanation of cyclical changes in velocity.

Let us, in broad outline, look briefly at the transactions and speculative demand for cash as a function of income, with these latter sets of assets in mind. The model is as follows:

1. \( M_s = M_d \)
2. \( M_s = \gamma \)
3. \( M_d = \alpha Y + \beta \) \((\alpha > 0)\)

where \( M_s \) is the supply of money, \( M_d \) is the demand for money as a (linear) function of income, \( Y \) is the flow of goods and services (i.e., GNP or income) and \( \alpha \) and \( \beta \) are the parameters with the usual conditions attached to the parameters. In particular, let us identify changes in \( \beta \) with changes in the demand for money. Now, the solution for income in terms of the parameters of the model is \( Y = \frac{\gamma - \beta}{\alpha} \). Next, suppose that the values of real goods and services, stocks and so on, are expected to rise, and the values of bonds and near-money assets are expected to decline. What then? The speculative demand for money

\(^1\) If \( \alpha > 0 \), then \( \gamma > \beta \), since \( Y \) cannot be negative.
balances decreases (i.e., \( \beta \) decreases). Therefore, income rises and so on. But the model has intuitive appeal. Money, with the prospect of a decline in value (i.e., a decline in purchasing power and liquidity), is being disposed of at a faster rate in exchange for real goods and services. The strength of the motive for holding money as well as bonds and near-money assets is weakened. The sequence of switching is, for example, from bonds into money balances, and out of money balances into real goods and services. Bond prices fall, bond and near-money yields rise, stock yields decline and the value of stocks and real goods and services rise. The converse set of relationships would also hold in the contraction phase of the cycle.

But look at our definition of the income velocity of money:

\[
V_y = \frac{Y}{M}.
\]

Substituting the parameters for income into the definition of the income velocity of money, we get an expression for velocity in terms of our parameters:

\[
V_y = \frac{\gamma - \beta}{\alpha} = \frac{1 - \beta}{\gamma}.
\]

We may simply view \( \beta \) as corresponding to the speculative demand for money and as a decreasing function of time in the expansion phase and an increasing function during the contraction phase—all in accordance with changes in the magnitude of prospective returns from stocks and instrumental capital. The result is a model explaining
(a) changes in the velocity of money,
(b) changes in the flow of income,
(c) changes in yields on debt instruments, and
(d) changes in stock prices (and therefore yields)—
in accordance with observations and common sense views of the real world. The model, in fact, could be said to simulate the direction of changes in the real-world phenomena.

In a more limited sense, however, we simply note that the changes in the income velocity in Table 1 do accord with the explanation. Income velocity rises from through to peak and declines from peak to through. In Table 1 we also note that velocity has been increasing at an increasing rate as we move over the expansion phases of each succeeding cycle. This is no doubt simply due to expansionary pressures in the post-war period in combination with constraints in the form of credit tightness. The constraints have made it necessary to effect a larger volume of expenditures in expansion phases of shorter and shorter duration as well as to utilize money balances by increasing velocity.
V. Summary

Professor Ritter interprets the word "safe" or "normal" with respect to the level of interest rates in some literal sense. This contrasts with the probability concept implied by Keynes in the context of similar discussions. Ritter's particular interpretation gives rise to the erroneous notion that the concept isn't applicable when dealing with the highly liquid money market. He explains his position by saying that short dated securities do not change as much in value as the longer dated ones in response to a given change in the rate of interest. Keynes' probability concept, however, is applicable because it deals with the probability of changes in one direction or the other rather than the extent of valuation changes in response to yield changes. Professor Ritter's views on the latter subject apparently and in part cause him to conclude that the orthodox Keynesian literature deals only with a long-term bond market and excludes the money market. Here again the reverse appears to be true from the literature growing out of Chapter 17 of The General Theory. That literature would lead one to envision a whole range of financial and commodity markets. In fact, we may explain changes in the velocity of money in terms of changes in the preference for money and near-money assets as opposed to stocks and instrumental capital.

Ritter's conclusion that there has been a decline in the interest elasticity of the liquidity preference function is unsubstantiated. His view that there has been a downward shift in the demand for money is contrary to the facts, and he has no grounds for quantitative statements about the interest elasticity of the demand for money.

The view that there have been economies in the management of money for transactions purposes in the U.S. has some support. However, this trend has occurred along with a trend of rising income, and the economies have not been sufficient to offset the increased demand for money for transaction or speculative purpose as an increasing function of income. Furthermore, the closely related view that the economies in the use of money balances have given rise to a trend toward an increase in velocity over the post-war years has little merit when one realized that the effective demand for balances has been increasing as a function of income.

Our alternative explanation for velocity changes in the U.S. is in terms of shifts in the level of aggregate demand. In this explanation we envision a strengthened (weakened) preference for assets such as stocks and instrumental capital vis-a-vis money and near-money assets when there are favorable (less favorable) prospects for larger flows of returns from the former set of alternatives such as may prevail in the expansion (contraction) phase of cyclical changes. These changes we have shown to give rise to parallel movements in velocity and income over time. Our explanation is quite orthodox.