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Working Paper No. 348

Asset Prices, Liquidity Preference, and the Business Cycle

by
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According to Hicks (1937), the novel idea in Keynes's theory was the notion that an increase in expenditures and income did not necessarily put an upward pressure on the interest rate. This was in Hicks' view what was unique about what he called Keynes's "*special theory* ." Hicks however made a distinction between this and what he thought was implicit in the *General Theory* . The latter he thought was closer to orthodoxy since it implied that-- as his IS/LM formulation made evident-- an increase in expenditure led to a rise in the interest rate, all other things being equal (p. 152).

If this is indeed the right yardstick by which to judge, Keynes argument in his *Treatise on Money* was perhaps more "Keynesian" than his argument in the *General Theory* . In this earlier work, Keynes relied on two different themes to argue that the interest rate need not rise with rising levels of expenditure. One of these was the elasticity of the money supply, which in his view depended on the policy of the banking sector as a whole and that of the central bank. The other was the interaction between financial and industrial circulation. A decrease (increase) in what Keynes called the bear position, i.e., a fall (rise) in the financial circulation, was similar in its impact to that of a policy-induced increase (decrease) in the money supply. In the early phases of a business cycle expansion, the expectation of rising asset prices lowered the magnitude of the bear position, and typically tended to compensate the upward pressure put on the interest rate by the rising level of expenditure and income, quite independently of the policy stance of banking sector. Likewise, the period of late expansion was associated with the rising preponderance of market opinion according to which asset prices were seen as excessive in relation to the actual performance of profits. That, in turn, gave momentum to the rise in the bear position, making the interest rate much more sensitive to upward pressure.

As is well-known, in the *General Theory* Keynes abandoned the first line of argument as he assumed that monetary authorities could exogenously control the money supply.¹ For reasons discussed below, the second line of argument also lost much of its force as it became reformulated under the rubric of Keynes liquidity preference theory of interest in the *General Theory* . After this reformulation, the connection between expectations about asset prices and the money supply became tenuous, if not severed, and remained little explored by Keynes's followers as well in later years, a few notable exceptions notwithstanding.² Even in Minsky (1975), who was keen to reintroduce asset price expectations into Keynes's theory of investment, the said connection was not much emphasized, and the early discussions on the possible instability of speculative demand for money were not followed up.³ Most Post Keynesian economists instead focused their attention on the question of money supply endogeneity and tended to ignore the second line of argument.

The objective of this paper is to go back to this old theme from the *Treatise* and underscore its importance for Keynesian theory of the business cycle. The following discussion is organized in three sections. The original argument in the *Treatise* is discussed in the first section, and contrasted against its reformulation in the *General Theory* , in the second. The third section provides an alternative formulation, using the IS/LM framework. The paper ends with a few concluding remarks.

FINANCIAL CIRCULATION IN THE *TREATISE*

In the *Treatise* , Keynes divides monetary circulation into two components, calling them respectively industrial and financial circulation. The former is linked to the production and circulation of goods and services, and the latter to decisions involving the holding or exchange of existing titles to financial wealth. Roughly speaking, the former involves the use of *cash* deposits and the latter that of *savings* deposits.⁴ The volume of industrial circulation is closely related to the level of output and expenditures while that of financial circulation is not. Instead, the latter, and its rough measure the volume of saving deposits,⁵ primarily reflect what Keynes calls the magnitude of the bear position,⁶ referring to those who choose to keep their resources in liquid form and those who sold securities short.

Of course, the desire to remain more, or less, liquid is not independent of the changes in security prices. Though the volume of savings deposits tend to increase (decrease) when the state of bearishness (bullishness) rises, the amount of this increase (decrease) depends on the extent to which the fall (rise) in security prices in relation to the short term rate of interest offsets the bearish (bullish) sentiment. This implies that, "[t]here will be a level of security prices which on the average opinion just balances the bullishness [or bearishness], so that the volume of savings deposits is unchanged. (CW, V, p. 224). If security prices fall (rise) beyond this point, then the savings deposits might actually decrease (increase).

In the *Treatise*, Keynes defines four types of speculative markets in connection with different configurations of the bear position, which typically correspond to different phases of the business cycle (CW, V, p. 226). The first involves a decreasing bear position, i.e., a decreasing volume of saving deposits, at a time of rising security prices. Keynes calls this a "bull market with a consensus of opinion" and distinguishes it from a "bull market with a difference of opinion," which he defines as a situation where the bear position is increasing at a time when security prices are also rising. In the former case, which typically holds during early expansion, the preponderance of market opinion holds that security prices have not risen sufficiently, while in the latter case, corresponding to late expansion, a rising segment of the market thinks that security prices have risen more than sufficiently. The third case, which corresponds to early recession, is a "bear market with a consensus," and again Keynes distinguishes this from a "bear market with a division of opinion." The former involves a rising bear position, i.e., increasing volume of saving deposits, at a time of falling security prices and the latter a decreasing bear position when security prices are still falling. The predominant view in the market is that security prices have not fallen sufficiently in the former and that they have fallen more than sufficiently in the latter.

From the point of view of orthodox theory of finance, if no new information has emerged, the very notion that security prices have increased or decreased more, or less, than *sufficiently* at a given point in time is nonsensical. For, if securities are thought to be undervalued, then arbitrageurs would continue to buy them until their prices are bid up to a level that is no longer considered low. Likewise, if securities are thought to be overvalued, again, arbitrage would bring their value down to a level consistent with what is considered to be their 'true' value. Thus, at a given point in time, with a given information set, the prevailing asset prices must be the best estimates of fundamental values.⁷

However, Keynes's approach in the *Treatise* is consistent with the modern "noise trader" approach to finance, which holds that *riskless* arbitrage is only effective when it comes to the relative prices of assets but not in relation to the prices of shares or bonds as a whole (Shleifer & Summers 1990).⁸ According to this approach, even when it is assumed that arbitrageurs know what fundamental values are, they face no *riskless* arbitrage opportunities when actual prices deviate from their true values. For with a finite time horizon, an arbitrageur faces two kinds of risk: when s/he, say, sells overvalued assets short it is possible that by the time s/he is supposed to liquidate his/her position (i) the economy can grow so rapidly that the true values increase, or, more importantly, (ii) the asset prices might be even more overpriced. In both cases, the arbitrageur would be experiencing heavy losses. Thus, the fear of loss would limit the initial positions the arbitrageurs take and thus prevent them from driving prices down in any significant way. Moreover, if we drop the assumption that arbitrageurs know what the true values are, the risk of loss they face is all the greater, and the compensatory shift in demand smaller.

In a vein very similar to the noise trading approach, Keynes in the *Treatise* remarks that when prices deviate from their 'true' values no automatic mechanism exists in the short run to check their advance. *Opinion*, or what we would today call *noise* (Black 1986), moves prices. "If everyone agrees that securities are worth more, and if everyone is a 'bull' in the sense of preferring securities at a rising price to increasing his savings deposits, there is no limit to the rise in price of securities and no effective check arises from a shortage of money" (CW, V, p. 229). However, as prices continue to rise, a 'bear' position begins to develop, and that is what can eventually check the rise in prices. "...[I]n proportion as the prevailing opinion comes to seem unreasonable to more cautious people, the 'other view' will tend to develop, with the result of an increase in the 'bear' position..." (CW, V, p. 228-9).

In Keynes's discussion in the *Treatise*, the rise of the bear position at a time when security prices are rising plays an important role in explaining the turning point of a business cycle expansion. In his view, "it is astonishing ... how large a change in the earnings bill can be looked after by the banking system without an apparent breach in its principles and traditions" (CW, V, p. 272). Yet, the banking system's ability to accommodate a rising level of production is typically impaired at some point during a business cycle expansion. That happens not because of some intrinsic difficulty the banking sector faces, but because the financial sentiment falters. There can be a myriad of immediate causes as to why and how that happens. But, the underlying reason is almost invariably the fact that the actual performance of profits, though they might still be rising, falls short of the high expectations that underlie asset prices. As the view that the market might be overvalued begins to take hold, the bear position develops, and "...the tendency of the financial circulation to increase, on the top of the increase in the industrial circulation ...break[s] the back of the banking system and cause it at long last to impose a rate of interest, which is not only fully equal to the natural rate but, very likely in the changed circumstances, well above it" (CW, V, p. 272).

In a similar manner, a declining bear position during a business upswing prevents the interest rate from rising with increasing levels of activity. It can, stylistically, be thought that in a given accounting period the amount by which the net increase in new securities issued by firms (investment) exceeds the net increase in demand for such securities by savers (savings) are purchased by those speculators who, expecting securities' prices to rise, draw down saving deposits in the aggregate. In fact, if the bullish sentiment is strong enough the prices of securities can even rise, implying that the interest rate might actually decrease rather than increase. Thus, independently of the policy of the banking system, an increase in investment in excess of saving need not put any downward pressure on asset prices.

LIQUIDITY PREFERENCE IN THE GENERAL THEORY

Interestingly enough, in his exchanges with Robertson, Hawtrey and Ohlin after the publication of the *General Theory*, where Keynes (1937a, 1937b, 1937c, 1938) conceded that a rise in *planned* investment would also raise the demand for money prior to its execution and thus all other things being equal the interest rate, he emphasized primarily the elasticity of money supply, rather than variations financial circulation, in arguing why this effect on the interest rate would not in practice amount to much. Could it be that in his exchanges with his critics Keynes chose to ignore the role of asset price expectations in business cycle dynamics because his theory of liquidity preference had become much more restrictive in its scope in the *General Theory*? In fact, an argument to that effect can be made on two related grounds: (i) in his latter work, assuming that the interest rate sets the return on capital, Keynes ignores the effect of bull or bear sentiment in equity markets as a second order complication that can be ignored in analyzing the equilibrium level of investment and output, and (ii) the reformulated version of his liquidity preference theory presumes inelastic expectations with respect

to the future interest rate, further restricting the scope of swings in the bull and bear sentiment under consideration to the variations in the current bond rate in relation to some *expected* future rate that is implicit in an *exogenously* given long bond rate.

(i) On the face of it, in the terminology of the *General Theory* the argument in the *Treatise* seems to amount to the simple proposition that the liquidity preference schedule shifts down (up) when the marginal efficiency of capital shifts up (down) on account of more optimistic (pessimistic) expectations. In fact, Keynes himself appears to have made such a connection himself — though not in the *General Theory*, but in one of his articles where he responds to his above mentioned critics.⁹ On closer examination, however, the suggested translation of the argument to the language of the *General Theory* is not as straight forward as it first seems.

For one, in the *General Theory*, Keynes centers his whole argument of liquidity preference on the expected variations in the price of loan capital, and delineates the variations in share prices as a separate issue to be dealt with under the marginal efficiency of capital.¹⁰ In turn, the very concept of the marginal efficiency of capital, which as Keynes stresses is *fixed* by the market valuation, implicitly precludes the notion of a mismatch between asset prices and fundamentals. Note that if the marginal efficiency of capital shifts up on account of higher expectations of future profitability that are *justified*, then the initial increase in asset prices will cease to be excessive when actual investment and profits increase. Yet it is not clear how this case would be distinguished from a situation where the higher profit expectations are somehow *unjustified* and give rise to asset prices that are excessive, all other things again being equal. If investment rises with the higher marginal efficiency of capital as it should and the multiplier is what it is in both cases, then it is unclear how one could define market overvaluation, barring capacity or employment constraints. But, in any event, whether actual return on investment turns out to be less than or equal to what was expected, Keynes assumes that the expected rate of return on capital adjusts to the interest rate in equilibrium through variations in the scale of investment. Since by assumption noise trading in the stock exchange does not influence the level at which the two rates equalize, he ignores fluctuations in share prices altogether as a second order complication, and focuses his attention exclusively on the portfolio choice between bonds and money.

(ii) In the reformulated version of his liquidity preference argument, Keynes remarks that "...what matters is not the absolute level of r [the interest rate] but the degree of its divergence from what is considered a fairly safe level of r , having regard to those calculations of probability which are being relied on" (Keynes 1936, p. 202). Though Keynes accepts that this 'safe' rate can itself vary from time to time, he takes this to be the exception rather than the rule. Thus, assuming that this safe rate remains unchanged, he remarks that every decrease (increase) in the current interest rate increases the expectation that bond prices will fall (rise) in the future, and thus raising (lowering) "the risk of illiquidity." The bearish (bullish) sentiment now refers to this heightened (reduced) sense of risk associated with illiquidity.

The assumption of inelastic expectations with respect to the long rate also implies — as Kaldor (1939) later pointed out — that, an even a very small change in asset prices would be sufficient to induce speculators to buy the new bonds firms issue, since they would be expecting the bond prices to rise in the future. This is the alternative argument Keynes could have, but had not, used in his exchange with his critics over the 'finance' demand for money, referred to above. But, note that this is a much weaker argument than the original one in the *Treatise*, for it presupposes that the liquidity preference function remains unchanged.

When Keynes refers to 'a change in the liquidity preference of the public' he generally means a shift in the whole liquidity preference function. For instance, in Keynes's discussion in Chapter 22 of the *General Theory*, referred to above, where he argues that a collapse in the marginal efficiency of capital causes an upward shift in liquidity preference, he is referring to a shift in the whole schedule and presumably a change in what is considered a safe rate as well. Thus, in Keynes's formulation in the *General Theory*, the speculative demand for money, expressed as a function solely of the interest rate, refers to the quantity of liquidity demanded, holding liquidity preference (i.e., the whole schedule) constant. If the liquidity preference varied with shifts in the marginal efficiency of capital, then expectations about the 'safe' rate cannot be assumed inelastic and that would in turn complicate the manner in which one can derive an interest elastic money demand schedule on the basis of the speculative motive.

In his discussion of the speculative motive in the *General Theory*, Keynes separated what were different dimensions of his old argument in the *Treatise* into two separate strands. One referred to the motivation to avoid capital losses or make gains by going in and out of financial assets, and the other stressed the importance of money balances as an insurance against unforeseen contingencies where agents, facing unexpected reductions in cash flow, are forced to liquidate asset positions at a loss. After the WWII, there had been a gradual shift of emphasis to this second strand, which eventually culminated in the incorporation of the liquidity preference argument into orthodox portfolio theory (Tobin 1958), weakening further what little link there still was in the *General Theory* between liquidity preference and the bull and the bear sentiment as understood in the *Treatise*.

AN ALTERNATIVE REFORMULATION

Given the status of the IS/LM framework as a *lingua franca* in economics despite its well-known deficiencies, it might be helpful to use it to indicate what form an alternative formulation of Keynes argument in the *Treatise* could take. Accordingly, expressing the demand for money as a function of not only income and the interest rate but also of expected future price of securities,¹¹ we can write:

$$L=L(Y,i,P)$$

where the expected future price of securities (P) is treated as an exogenous shift variable. For the sake of argument we can, for now, assume that money supply is fixed:

$$M = \bar{M}$$

Setting the two equations equal to one another and totally differentiating both sides gives the slope of the LM schedule:

$$\left. \frac{di}{dY} \right|_{LM} = - \frac{(L_Y + L_P \frac{dP}{dY})}{L_i}$$

where, as usual, it is assumed that $L_Y > 0, L_i < 0$. The effect of a higher (lower) expected future price of securities on liquidity is negative (positive), implying that $L_P < 0$. This implies that the slope of the LM schedule depends on the sign of $\frac{dP}{dY}$, which

indicates whether or not asset prices are expected to rise (fall) further during an expansion (recession). During an upturn, the ratio is positive when there is a "bull market with a consensus of opinion" and negative when there is a "bull market with a division of opinion." Likewise, during a downturn, a positive ratio — with both the numerator and the denominator negative — implies that asset prices are not thought to have fallen sufficiently, i.e., a "bear market with a consensus"; and, a negative ratio implies that future asset prices are no longer expected to fall even though income is still decreasing, i.e., a "bear market with a division of opinion".

It can readily be seen that the slope of the LM schedule is definitely positive only when $\frac{dP}{dY}$ is negative. In other words, during an upturn, this is the period of late expansion associated with an overvalued market when the increase in the level of activity, which might be depicted by an upward shift in the IS schedule, drives the interest rate higher. But, when $\frac{dP}{dY}$ is positive, i.e., a bull market with a consensus of opinion, the slope of the LM schedule will roughly be flat to the extent that the fall in demand for liquidity on account of expectations that asset prices will continue to rise ($L_P \frac{dP}{dY}$) offsets the increase in transactions demand (L_Y). Likewise, during a downturn the fall in output and income for a given downward shift in the IS schedule will be greater when there is a bear market with consensus, i.e., when $\frac{dP}{dY} > 0$, the rise in demand for liquidity on account of expectations that asset prices will continue to fall will offset the fall in transactions demand. Thus, whatever monetary relief there is in a business downturn in the form of a lower rate of interest, will come about more on account of changed expectations about having hit bottom than because of a lower transactions demand associated with decreased level of activity.

Above, a fixed supply of money was assumed for the express purpose of bringing into sharp relief the *reach* of Keynes's original liquidity preference argument. However, the ongoing discussion can also be made consistent with Keynes's analysis in the *Treatise*-- though it requires a separate analysis in another paper to develop it fully-- by incorporating banks' own liquidity preference, and the responsiveness of bank credit to both the level of activity and asset price expectations. Thus, the supply of money can also be expressed as a function of the level of income, the interest rate and future expectations about asset prices.

$$M = M(Y, i, P),$$

and the slope of the LM schedule is then given by:

$$\left. \frac{di}{dY} \right|_{LM} = \frac{(M_Y - L_Y) + (M_P - L_P) \frac{dP}{dY}}{(L_i - M_i)}$$

where it is assumed that all three variables affect the supply of money positively: $M_Y > 0, M_i > 0$ and $M_P \geq 0$.

Provided that $M_Y \leq L_Y$, the gist of our earlier argument about the changing slope of the LM schedule over different phases of the business cycle remains the same, but the present formulation enables us to consider the effects of possible changes in bank behavior over

$\alpha Y |_{LM}$ $(L_j - M_j)$ determined by the dynamic interaction of the three variables Keynes emphasized in the *Treatise*: banking sector behavior, the state of bearishness, and the level of industrial circulation. Finally, it is interesting to note that a strict "horizontalist" position, which can perhaps be characterized for our purposes here by the assumptions, $M_Y = L_Y$ and $M_i = M_P = 0$, takes us closer to the earlier specification where a fixed supply of money is assumed. More specifically, it can be seen that changes in the interest rate over the cycle is determined (i) solely by shifts in the state of bearishness in the horizontalist position; (ii) by the interaction of the level of activity and the state of bearishness in the "verticalist" position; (iii) and by the interaction of all three variables in Keynes's *Treatise*.

CONCLUSION

Perhaps, no single idea other than the marginal efficiency of capital schedule has come under as much critical scrutiny in the *General Theory*, at least among Keynes's heterodox followers. Yet, interestingly, the role Keynes's treatment of investment in the *General Theory* played in weakening his liquidity preference argument has been little recognized. The objective of this paper has been to go back to the original argument in the *Treatise* and show that its reconsideration can greatly enhance the Keynesian analysis of the business cycle.

Both the version he reformulated in the *General Theory*, and what 'liquidity preference' has eventually come to mean in the literature, are very much at odds with Keynes's penetrating insights on noise trading in the stock exchange in his famous chapter on the state of long term expectations. Moreover, some of his remarks and conclusions in this chapter and those in his chapter on the trade cycle at the end of his book are incomparably more forceful than anything one can find in his *Treatise*.¹² Yet, despite the far-reaching implications of these enunciations, Keynes's implicit approach to finance within his theory had moved closer to the orthodoxy in his *General Theory*-- perhaps, mainly, but not exclusively, on account of his methodological shift to equilibrium analysis.¹³

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NOTES

1. However, he returned to it in his exchanges with his critics after the publication of the *General Theory* (see below).
 2. For the early discussions on the possible instability of speculative demand for money, see Kahn (1954), Weintraub (1958) and Davidson (1972), among others.
 3. In Minsky, the causation runs in the opposite direction, whereby changes in the money supply affect asset prices. However, though it remains outside the scope of this paper, it might be useful to point out that the discussion here complements the rest of Minsky's analysis of the business cycle and the "financial accelerator" thesis of the 'Credit View.'
 4. Keynes maintained that saving deposits would typically be held in the form of "deposit accounts" (which corresponds to time deposits in the US) and while cash deposits would take the form of "current accounts" (checking or demand deposits in the US).
 5. "In modern conditions, both in GB and the US, the total 'bear' position can, of course, much exceed the amount of saving deposits..., since professional investors have other, and generally more profitable, means of lending 'bear' funds against liquid claims on cash than through the banking system, e.g., by buying treasury bills and by direct loans to the money market and the stock exchange" (CW, V, p. 225).
 6. The volume of financial circulation also reflects the volume of trading times the average value of instruments traded.
 7. As is well known, 'the efficient market hypothesis' go back to Samuelson's (1965) proof that in a market that is *efficient* in appropriating all available information stock prices should exhibit a random walk, and Fama's (1965) demonstration that the stock market almost actually does. However, note that the time series of stock prices that systematically deviate from their true values can also look like random walk (Summers 1986).
 8. See also Davidson (1998) on noise trading and the efficient market hypothesis.
 9. In Chapter 22 of the *General Theory*, - which is incidentally the only place where the connection between the two schedules is ever made - the marginal efficiency collapses when the actual return on investment turns out to be disappointing and that in turn causes the upward shift in liquidity preference as a *result*. However, in Keynes (1937a), he writes, "When a pessimistic view taken about future yields, that is no reason why there should be a diminished propensity to hoard. Indeed, the conditions which aggravate the one factor tend, as a rule, to aggravate the other. For the same circumstances which lead to pessimistic views about future yields are apt to increase the propensity to hoard" (CW, XIV, p. 118).
 10. "Whilst liquidity-preference due to the speculative-motive corresponds to what in my *Treatise on Money* I called "the state of bearishness", it is by no means the same thing. For "bearishness" is there defined as the functional relationship, not between the rate of interest (or price of debts) and the quantity of money, but between the price of assets and debts, taken together, and the quantity of money. This treatment, however, involved a confusion between results due to a change in the rate of interest and those due to a change in the schedule of the marginal efficiency of capital, which I hope I have here avoided. (Keynes 1936, p. 173-4).
 11. We can lump bonds and shares together as Keynes does in the *Treatise*, and define the supply of money coextensively with bank money.
 12. "Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done" (Keynes 1936, p. 159). And, perhaps, even more strongly worded is the statement in Ch. 22: "In conditions of *laissez-faire* the avoidance of wide fluctuations in employment may, therefore, prove impossible without a far-reaching change in the psychology of investment markets such as there is no reason to expect. I conclude that the duty of ordering the current volume of investment cannot safely be left in private hands" (Keynes 1936, p. 320).
 13. Elsewhere, I discuss the main contours of this shift in detail and argue that along the way Keynes's notion of equilibrium/disequilibrium has changed as well (Erturk 1996).
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