

KEYNES AND MONETARY POLICY IN SPECULATIVE MARKETS

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INTRODUCTION

The paper below gives an outline of some of the implications for monetary policy, and for monetary control over asset price inflation, of my theory of capital market inflation (Toporowski, 2000). While the theory originated in my reading of Minsky and Kalecki, I want to show in this paper that it is consistent with the conceptual framework of Keynes's *General Theory* as well as extending that theory to a period of renewed dominance by finance capital.

The theory of capital market inflation is a new theory which was developed to explain how the capitalist economy operates when the primary impulse, determining the nature and direction of economic developments,

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arises from the large inflows of money into financial asset markets, *i.e.*, capital market inflation. The orthodox, general equilibrium, theory without exception regards this kind of inflation as a prelude to a new general equilibrium, at a higher level of saving and investment. This has become the almost universal rationale for introducing funded pension schemes which boost the liquidity of the capital markets. The diversion of excess liquidity from the capital markets of the industrialised economies into the developing and newly-industrialised countries, has been welcomed by equilibrium theorists. Their reasons echo those which had been advanced early in the twentieth century by Gustav Cassel, for example, namely that such inflows provide private sector capital for productive investment. The continuing low rates of investment in the countries which had most ardently embraced the inflation of their capital markets as a way of stimulating high investment and dynamic economic growth (the U.S. and U.K.), and the speculative booms and spectacular crises endured by developing and newly-industrialised countries, which inflated their capital markets with financial liberalisation, suggests that the equilibrium theory may be faulty. The theory of capital market inflation provides a systematic explanation of what happens to the rest of the economy when finance is stimulated in this way. This paper examines how such inflation affects the working of monetary policy.

In his *General Theory*, Keynes presented a persistent short-period under-employment equilibrium, with equilibrium in the capital and banking markets financing the current rate of investment. This is notwithstanding suggestive comments in chapter 12 about stock market speculation. The analytical assumption of stability in the capital and banking markets is underpinned by Keynes's assumption of a stable, upward-sloping yield curve. Thus Keynes recommended that the long-term rate of interest be brought down to stimulate investment by monetary expansion and open market operations (acting on the short-term rate of interest). He also recommended more direct action in the bond markets to support monetary and open market operations.

The theory of capital market inflation examines what happens if the capital market is inflated over and above the needs of current investment, a possibility that, following the 1929 Crash, Keynes did not consider when

writing his *General Theory*. The 'general equilibrium' view is that business investment rises (Tobin, 1969). This would probably also have been Keynes's view. In common with most other economists of the time, he associated the capital market inflation of the 1920s in the U.S. with a boom in fixed capital investment (see *e.g.*, Keynes, 1930, vol. I, pp. 239-240, Harrod, 1936, p. 207). Only in the 1950s did Steindl's re-examination of the pioneering data of Simon Kuznets (early versions of which Keynes himself cited in the *General Theory*) reveal that, in fact, the rate of growth of business investment actually declined during the 1920s stock market boom (Steindl, 1952, pp. 185-187, Kuznets, 1946). Keynes himself had concluded that 'it would be absurd to assert of the United States in 1929 the existence of over-investment in the strict sense. The true state of affairs was of a different character. New investment during the previous five years had been, indeed, on so enormous a scale in the aggregate that the prospective yield of further additions was, coolly considered, falling rapidly. Correct forecasts would have brought down the marginal efficiency of capital to an unprecedentedly low figure.' (Keynes, 1936, p. 323).

The Theory of Capital Market Inflation defines capital market inflation as an excess demand for longer-term securities which causes their prices to rise. However, the increase in stock prices is not equally distributed around all sectors of the stock market. Bond prices have their repayment value fixed and their market prices rarely rise above this value, unless new bonds can be issued at lower yields to repay higher yield financial liabilities, or there is an obligation to buy and hold bonds for regulatory reasons, which is why pension funds in the U.K. have been holding government stocks even when priced above par. However, shares, or common stocks, do not have any fixed repayment value, so that their prices are less constrained. An excess inflow of funds into the stock market therefore causes a rise in stock prices and turnover, concentrated in equity shares. Their prospective capital gain makes such stocks more desirable and financial investors increase the proportion of such stocks held in their portfolios. This makes the market more fragile because, unlike bonds, which have to be repaid, shares have no assured residual liquidity, but depend on future demand from other investors for their liquidity.

The effect of such financial inflation on companies is to reduce the costs of their equity financing: Investors can now be offered an element of return, the capital gain, which the issuing company does not have to pay, but is paid by other, future, financial investors. (Keynes hinted at this in chapter 12 of the *General Theory*). The proceeds of share issues are usually used to repay debt, since this immediately increases operating profits by the reduction in debt interest. However, it leads to an over-capitalisation of companies when excess capital is issued. The excess capital causes an increase in companies' liquidity preference, expressed in a rise in liquid assets held, corresponding to the rise in capital. Liquid assets are a better security against excessive financial liabilities than illiquid productive capacity. Far from causing a rise in fixed capital investment, the new capital is used to engage in corporate restructuring, mergers and takeovers and other undertakings of apparent liquidity, in the sense that these endeavours are undertaken in conditions of liquid capital markets *on the assumption that this liquidity will be maintained*. Thus large corporations become 'rentier' firms, buying and selling companies for capital gain. When the liquidity of the capital market declines, and it is no longer possible sell-off, or refinance, companies profitably, the temporary nature of the corporate profits obtained from corporate restructuring is exposed. Enron and WorldCom are excellent examples. As productive activities come to be incidental to balance sheet restructuring as a source of income, companies' inclination to invest in fixed capital is reduced, except in the case of new technology, whose uncertain rewards can be used to stoke up the optimism of financial investors. In the second half of the twentieth century, the fastest economic growth was obtained in countries with the weakest stock markets (e.g., Japan, Germany, Italy). The industrialised countries with the most active stock markets, the U.S. and U.K., did not accelerate their economic growth, relative to the immediate post-War period, through the inflation of their stock markets in the 1980s and the 1990s. Among the developing and newly industrialised countries, financial liberalisation led to speculative economic expansion followed by emerging market crises.

A more immediate adverse side-effect of this inflation is bank disintermediation. Banks find that their best customers, big corporations and governments, can now finance themselves more cheaply from the capital

markets and do so to repay their bank debts. Banks are forced to rely more on risky lending to small and medium-sized companies, consumer debt, and international lending to countries excluded from the capital market. As banks' portfolios become more risky, their credit ratings decline. Companies now find it cheaper to operate directly in the money market, using the excess liquidity which they now hold to invest in those markets and even to issue their own paper directly. Banks however come into their own later when capital market liquidity falls off, as companies borrow to sustain their share price. Such borrowing introduces a classic Ponzi financing structure. (Ponzi financing is a term introduced by Hyman Minsky to describe a form of speculation in which the speculator undertakes financial commitments which will increase, *e.g.*, borrowing money, in order to buy assets, like shares, which may decrease in value. Unlike 'hedged' finance, where financial obligations are matched by cash inflows, Ponzi finance, in Minsky's view, is the essential cause of financial crisis.) When money is borrowed to buy in shares at a higher price than the one at which the shares were issued then, for a given issue of shares, there is an increase in debt, without any corresponding increase in the productive capacity of the company. Thus bank assets are renewed at a lower quality, because they now lend to companies with a rising ratio of debt to productive assets.

The other sector that changes the structure of its balance sheet in response to capital market inflation is the government. Rising share prices facilitate privatisation, effectively repaying government debt or financing current activities, by the issue of shares in privatised companies, *i.e.*, liabilities on the corporate sector. This imparts further fragility to financial investors' portfolios. Government bonds have their liquidity assured by the government, or the central bank. Long-term bonds or stocks issued by companies do not have such assured liquidity although, when the capital market is being inflated, corporate stocks may *temporarily* appear very liquid because of the high turnover in these stocks, due to speculation and the high level of merger and takeover activity.

1. CAPITAL MARKET INFLATION AND MONETARY POLICY

Among the most notoriously pernicious effects of asset price inflation is that it offers speculators the prospect of gain in excess of the costs of bor-

rowing the money to buy the asset whose price is being inflated. This is how many unstable Ponzi financing structures begin. There are usually strict regulations to prevent or limit banks' direct investment in financial instruments without any assured residual liquidity, such as equity or common stocks. However, it is less easy to prevent banks from lending to speculative investors, who then use the proceeds of their loans to buy securities, or to limit lending secured on financial assets. Loans secured directly, or indirectly, on stock market assets have been an important factor in the collapse of Japanese banks following the fall in stock market prices during the 1990s. As long as asset markets are being inflated, such credit expansions also conceal from banks, their shareholders and their regulators, the disintermediation that occurs when the banks' best borrowers, governments and large companies, use bills and company paper instead of bank loans for their short-term financing. As long as the boom proceeds, banks can enjoy the delusion that they can replace the business of governments and large companies with good, secured lending.

In addition to undermining the solvency of the banking system, and distracting commerce and industry with the possibilities of lucrative corporate restructuring, capital market inflation also tends to make monetary policy ineffective. Monetary policy is conducted by the central bank through operations in banking markets. These are principally the fixing of reserve requirements, buying and selling short-term paper or bills in the money or inter-bank markets, buying and selling government bonds, and fixing short-term interest rates. As noted in the previous section, with capital market inflation there has been a proliferation of short-term financial assets traded in the money markets, as large companies and banks find it cheaper to issue their own paper than to borrow from banks. This disintermediation has extended the range of short-term liquid assets which banks may hold. As a result of this it is no longer possible for central banks, in countries experiencing capital market inflation, to control the overall amount of credit available in the economy. Attempts to squeeze the liquidity of banks in order to limit their credit advances by, say, open market operations (selling government bonds) are frustrated by the ease with which banks may restore their liquidity by selling bonds or their holdings of short-term paper or bills. (This is further explained in Kaldor, 1982, and Chick, 1986). Unable

to control credit expansion, central banks have been forced to reduce the scope of their monetary policy to the setting of short-term interest rates (*cf.* Goodhart, 1986).

Economists have long believed that monetary policy is effective in controlling price inflation in the economy at large, as opposed to capital mark inflation. Various rationalizations have been advanced for this efficacy of monetary policy. For the most part they suppose some automatic causal connection between changes in the quantity of money in circulation and changes in prices, although the Austrian school of economists tended on occasion to see the connection as being between changes in the rate of interest and changes in prices (Hayek, 1935, Lecture III).

Whatever effect changes in the rate of interest may have on the aggregate of money circulating in the economy, the effect of such changes on prices has to be through the way in which an increase or decrease in the rate of interest causes alterations in expenditure in the economy. ('The efficacy of a weapon of monetary policy depends upon the proportion by which it can change total spending in a given period.' Sayers 1940) Businesses and households are usually hard-headed enough to decide their expenditure and financial commitments in the light of their nominal revenues and cash outflows, which may form their expectations, rather than directly by expectations or optimizing behaviour (Goodhart, 1984). If the same amount of money continues to be spent in the economy, then there is no effective reason for the businessmen setting prices to vary prices. Only if expenditure in markets is rising or falling would retailers and industrialists consider increasing or decreasing prices. The notion, made fashionable by the Lucas version of monetarism, that business-men are guided in the setting of prices by their *expectations* of prices changes elsewhere in the economy, is less practical because it requires businessmen to take a view on developments in the rest of the economy, rather than the state of demand and supply in their market. Because price expectations are only observable directly with difficulty, they may explain everything in general and therefore lack precision in explaining anything in particular. Notwithstanding their effects on all sorts of expectations, interest rate changes affect inflation directly through their effects on expenditure. This is now recognised by the Bank of England's economists (Bank of England, 1999).

The principal expenditure effects of changes in interest rates occur among net debtors in the economy, *i.e.*, economic units whose financial liabilities exceed their financial assets. This is in contrast to net creditors, whose financial assets exceed their liabilities, and who are usually wealthy enough not to have their spending influenced by changes in interest rates. If they do not have sufficient liquid savings out of which to pay the increase in their debt service payments, then net debtors have their expenditure squeezed by having to devote more of their income to debt service payments. In this way, Minsky argued, hedge finance becomes speculative, and speculative finance becomes Ponzi finance and the whole financial system becomes more 'fragile' (Minsky, 1986, pp. 209-210).

The principal net debtors are governments, households with mortgages, and companies with large bank loans. With or without capital market inflation, higher interest rates have never constrained government spending, because of the ease with which governments may issue debt or claims against itself. In the case of indebted companies, the degree to which their expenditure is constrained by higher interest rates depends their degree of indebtedness, the available facilities for additional financing, and the liquidity of their assets.

In the previous section it was pointed out that as a consequence of capital market inflation, larger companies reduce their borrowing from banks because it becomes cheaper and more convenient to raise even short-term finance in the booming securities markets. This then makes the expenditure of even indebted companies less immediately affected by changes in bank interest rates, because general changes in interest rates cannot affect the rate of discount or interest paid on securities already issued. Increases in short-term interest rates, to reduce general price inflation, can then be easily evaded by companies financing themselves by issuing longer-term securities, whose interest rates tend to be more stable. Furthermore, capital market inflation induces companies to become over-capitalised and have excessive financial liabilities, against which companies tend to hold a larger stock of more liquid assets (see above). Moreover, inflated financial markets are more unstable, which further increases the liquidity preference of large companies. Excess liquidity enables the companies enjoying it to gain higher interest income to off-set the higher cost of their borrowing,

and to maintain their planned spending. Larger companies, with access to capital markets, can afford to issue securities to replenish their liquid reserves. Thus the high interest rates from 1989 to 1992, which brought about the end of the 1980s boom in the United Kingdom, had only a marginal effect on companies' expenditures. Their principal anti-inflationary effect was through the reduced expenditure of households which had entered into very large variable-rate mortgage commitments during the 1980s property boom, and small and medium-sized companies financing themselves with debt. Thus capital market inflation reduced anti-inflationary monetary policy to squeezing the expenditure of households and smaller companies. Given the pre-eminence of big companies' investment in determining the course of the business cycle, a pre-eminence that has increased with recent privatisation, such investment's increasing independence of monetary policy means that such policy can only be less effective.

However, the effects of monetary policy on the exchange rate, under a floating rate regime, should not be ignored. Indeed, it has been argued that this is the main vehicle through which monetary policy influences the economy (*e.g.*, Dow and Saville, 1988). Open economies, especially those of developing or newly-industrialised countries, are particular vulnerable because the exchange rate tends to fluctuate perversely when cross-border capital movements are unregulated. Raising interest rates to moderate an economic boom, and lowering them to stimulate economic growth, widens the oscillations of the exchange rate over the business cycle, contributing to over-valuation during the boom, and under-valuation in the recession. Financial obligations in foreign currencies are entered into during the period of over-valuation, only for the value of those obligations to rise dramatically when the exchange rate falls (Lopez, 1997, Toporowski, 2002).

If capital market inflation reduces the effectiveness of monetary policy against product price inflation, because of the reduced borrowing of companies and the ability of booming asset markets to absorb large quantities of bank credit, interest rate increases have appeared effective in puncturing asset market bubbles in general, and capital market inflations in particular. The inflated Japanese stock and property markets never recovered from the sharp rise in Japanese interest rates in 1991, and rising interest rates were

associated with the collapse of the Mexican markets in 1995 and the East Asian markets in 1997.

Whether interest rate rises actually can effect an end to capital market inflation depends on how such rises actually affect the capital market. In asset markets, as with anti-inflationary policy in the rest of the economy, such increases are effective when they squeeze the liquidity of indebted economic units by increasing the outflow of cash needed to service debt payments, and by discouraging further speculative borrowing. However, they can only be effective in this way if the credit being used to inflate the capital market is short-term or is at variable rates of interest determined by the short-term rate. There is no evidence that short-term borrowing has been on a scale commensurate with the emerging market boom, and subsequent crises in it. The way in which high short-term interest rates reduce capital market inflation, and burst asset price bubbles in general, illustrates not so much the efficacy of interest rate policy, as the unstable relationship between short-term interest rates and capital markets. Most theories of the yield curve, such as the one implicit in Keynes's theory of the Speculative Motive for holding money, suggest that long-term rates of interest are stable functions of short-term rates of interest.

Keynes's 'speculative motive' for holding money has been the subject of much debate and even misunderstanding. It is usually portrayed in textbooks as an inverse function of the rate of interest. However, in the *General Theory*, Keynes's speculative demand for money is the liquidity preference or demand for short-term securities of rentiers (financial investors) in relation to the yield on long-term securities. Keynes speculative motive is 'a continuous response to gradual changes in the rate of interest' (Keynes, 1936, p. 197) in which, as interest rates along the whole maturity spectrum decline, there is a shift in rentiers portfolio preference toward more liquid assets. Keynes clearly equated a rise in equity (common stock) prices with just such a fall in interest rates (*ibid.*, p. 151, footnote 1). Arguably, with falling yields on long-term securities, the increasing preference of rentiers for short-term financial assets could keep the capital market from excessive inflation.

But the relationship between rates of interest, capital market inflation and liquidity preference is somewhat more complicated. In reality investors

hold liquid assets not only for liquidity, which gives investors the option to buy higher-yielding longer-term stocks when their prices fall, but also for yield. During an extended period of high interest rates and liquid financial investment institutions, such as that which has characterised the U.K. and U.S. economies since 1980, short-term financial assets acquire longer-term investment value. In our times, the modern rentier is the fund manager investing long-term on behalf of pension and insurance funds, and competing for returns against other funds managers. An inflow into the capital markets in excess of the financing requirements of firms and governments results in rising turnover as well as prices of stock. This higher turnover means greater liquidity so that, as long as the capital market is being inflated, the speculative motive for liquidity is more easily satisfied in the market for long-term securities. This marginalizes Keynes's speculative motive for liquidity.

Furthermore, capital market inflation adds a premium of expected inflation, or prospective capital gain, to the market yield on long-term financial instruments. Hence, when that yield decreases, due to an increase in the securities' market or actual price, the prospective capital gain will not fall following this capital appreciation, but may even increase if it is large or abrupt. Rising short-term interest rates will therefore fail to induce a shift in the liquidity preference of rentiers towards short-term instruments until the central bank pushes these rates of interest above the sum of the prospective capital gain and the rate of interest on long-term stocks. Only at this point will there be a shift in investors' preferences, causing capital market inflation to cease, or bursting an asset bubble.

Expected capital gains from holding financial assets are crucial for Keynes's analysis. This is shown in section 3 below. However, most economists have tended to see the speculative demand for money as being determined by differences between current interest rates, or market yields on long-term securities, and *expected* interest rates or market yields. For example, Tobin has criticised Keynes's speculative demand for money, suggesting that it depends on a presumption that interest rate expectations are weakly influenced by a change in interest rates, i.e., interest rate expectations are inelastic. Keynes suggests this in chapter 15 of the *General Theory*. Tobin resolves this dilemma by making interest rate expectations

adaptable, in a general equilibrium framework. But the rate of interest in such a framework is no longer a 'pure monetary' phenomenon, in Schumpeter's sense of a theory in which 'interest is not derived from, or expressive of, anything that has, in whatever form, to do with the net return from capital goods'. This removes precisely what Schumpeter considered '... from the standpoint of theoretical analysis alone, perhaps the most important original contribution of the *General Theory*' (Schumpeter, 1954, p. 1178). In a general equilibrium, such as Tobin's 'q' theory, financial returns are supposed eventually to equal returns from capital, a Ricardian (*i.e.*, real capital productivity) solution, rather than a Keynesian (pure monetary) one. This paper suggests that disequilibrium is a more likely outcome when interest rate expectations take into account speculative gains.

During an economic boom, therefore, capital market inflation adds a premium of expected capital gain (including a risk premium specific to the firm issuing the security) to the market yield on long-term stocks. As long as this yield plus the expected capital gain exceeds the rate of interest on short-term securities, set by the central bank's monetary policy, rising short-term interest rates will have no effect on the inflow of funds into the capital market and, if this inflow is greater than the financing requirements of firms and governments, on the resulting capital market inflation. Only when the short-term rate of interest exceeds the threshold set by the sum of the prospective capital gain and the yield on long-term stocks, will there be a shift in rentiers' preferences. The increase in liquidity preference will reduce the inflow of funds into the capital market. As the rise in stock prices moderates, the prospective capital gain gets smaller, and may even become negative. The rentiers' liquidity preference increases further and eventually the stock market crashes, or ceases to be active in stocks of longer maturities.

At this point, the minimal or negative prospective capital gain makes equity or common stocks unattractive to rentiers at any positive yield, until the rate of interest on short-term securities falls below the sum of the prospective capital gain and the market yield on those stocks. However, from the short term interest rate the must now be deducted a positive liquidity premium, because of the lower liquidity in the market for long-term securi-

ties when it is depressed. Only when the short-term rate of interest, minus the liquidity premium, does fall below this threshold, can the resulting reduction in rentiers' liquidity preference revive the capital market. Thus, in between the bursting of speculative bubbles, and the resurrection of a dormant capital market with ultra-cheap money, monetary policy has little effect on capital market inflation. Hence it is a poor regulator for 'squeezing out inflationary expectations' in the capital market.

The recent inflation of the capital markets in the last decades of the twentieth century, produced by the establishment of funded pension schemes, was different, however. Pension schemes which fund their liabilities by investing pension contributions in financial markets, can go on for years after their establishment paying out less in pensions than they take in as contributions. The period during which a pension fund is making net purchases of securities is known as its immaturity. The sustained inflation of capital markets by immature pension funds maintained a permanently positive prospective capital gain in those markets. (Pension fund immaturity and its effect on securities markets is further explained in part II of Toporowski, 2000). The effect was to put into abeyance the monetary capital market cycle since short-term interest rates were not raised even higher to counteract this. (The exception was the early Reagan-Thatcher period of very high interest rates.) Moreover, pension funds' purchases of securities are not financed with credit, but through the contributions of employees and companies. Such purchases are therefore largely immune to increases in the rate of interest. Thus, while capital market inflation weakens the influence of monetary policy on the economy in general, because of the reduced dependence of larger borrowers on bank credit, the inflation of capital markets by pension funds renders ineffective attempts at controlling that inflation by increases in interest rates. But the eventual requirement to take money out of the stock markets by a number of pension funds reduces liquidity and prices in stock markets, and hence the ability of funded pension schemes to pay the expected pensions. The decline of stock prices throughout the world since 1999, and the recent enforcement of reduced pension benefits by pension funds in the U.S. and U.K., suggests that the phase in which monetary policy is rendered less effective by capital market inflation may be coming to an end. Nevertheless, the dependence,

induced by the earlier inflation, of corporate balance sheets on capital markets depressed by decreased liquidity does not indicate that monetary policy may be any more effective in stimulating economic activity than it was in controlling the previous financial boom.

2. 'OWN RATES OF RETURN

In the previous section it was argued that Keynes's notion of the speculative demand for money requires modification in an extended period when the capital market is being inflated. In particular it was suggested that the speculative demand for money would not hold the slope of the yield curve steady by raising the liquidity preference of financial investors. It would be somewhat unfair to treat this as a criticism of Keynes's monetary-financial analysis in the *General Theory*. That analysis did not take into account the possibility of the kind of extended period of stock market inflation that we have experienced in Britain and the United States as a result of the shift towards funded pension schemes. However, it can be argued that the monetary analysis of the theory of capital market inflation described above is consistent with Keynes's thoughts on 'own rates of return'.

Keynes's theory of 'own rates of return' is distinctive in being peculiar to the *General Theory*. It puts forward a *monetary* theory of under-employment, as opposed to the financial theory of under-employment with which he ended the *General Theory*. However, applied to the financial markets, the only sector in which it may be realistically applied, it can be shown to be consistent with the theory of capital market inflation. It has to be admitted that Keynes's analysis here is confused by the way in which Keynes ordered assets according to their liquidity. This means that he treated financial securities, bonds *and* productive capital as instruments whose only distinction, from his point of view, was their position along a liquidity spectrum. We, however, are used to organising these instruments according to the flow of funds accounts, which make financial assets the counterparts of real capital assets accumulated in the non-financial sectors of the economy. The Swedish Wicksellians and, latterly, James Tobin's portfolio balance approach to money, as well as the theory of capital market inflation, are put forward in flow of funds terms. (See Leijonhufvud,

1968, pp. 326-327, Myrdal, 1939, chapter IV, Keynes, 1936, pp. 227-228. The definitive statement of the different position and their implications for monetary policy is given in Chick 1973, chapter 6).

The theory of 'own rates of interest' appears in chapter 17, 'The essential properties of interest and money'. In an attempt to escape capital productivity theories of interest, Keynes put forward the idea that all commodities may be deemed to have their 'own' rate of interest. This is the net benefit obtained from holding them over time. Keynes suggested that this net benefit consists of the yield or net output of the commodity (income and appreciation in money terms), minus its carrying cost (cost of storage), plus its liquidity premium (the 'power of disposal over an asset'). Included in this was also supposed to be a 'risk premium', *i.e.*, the holder's 'confidence' in the expected yield of the commodity. Because money cannot be easily produced ('has, both in the long and in the short period, a zero, or at any rate a very small, elasticity of production'), and has a negligible elasticity of substitution, its own rate of interest, the money rate of interest, is the standard against which other own rates are measured. If other rates are higher, their commodities are therefore produced for gain, gradually reducing their 'own' rate of return until there is no advantage in production, as opposed to holding money:

Thus, with other commodities left to themselves, "natural forces," *i.e.*, the ordinary forces of the market, would tend to bring their rate of interest down until the emergence of full employment has brought about for commodities generally the inelasticity of supply which we have postulated as a normal characteristic of money. Thus, in the absence of money and in the absence—we must, of course, also suppose—of any other commodity with the assumed characteristics of money, the rates of interest would only reach equilibrium when there is full employment. (Keynes, 1936, p. 235).

This analysis gave rise to long discussions with Hawtrey and Robertson over the meaning and significance of 'own' rates of interest. Keynes eventually concluded:

I admit the obscurity of this chapter. A time may come when I am, so to speak, sufficiently familiar with my own ideas to make it easier. But at present I doubt if the chapter is any use, except to someone who has entered into, and is sympathetic with, the ideas in previous chapters; to which it has, I think, to be regarded as posterior. For it is

far easier to argue the ideas involved in the much simpler way in which they arise in the chapter on liquidity preference. (Keynes 1935, p. 519).

Keynes scholars have therefore largely ignored what Hansen described as a 'detour which could be omitted without sacrificing the main argument.' (Hansen, 1953, p. 155). Indeed, while the ideas of the chapter develop or illustrate concepts which Keynes made use of in the book, its conclusion is at odds with the conclusion of the *General Theory*, and his emphasis since before the *Treatise on Money*, that the long-term rate of interest, rather than the money market rate of interest, is the key to investment and output. Kaldor developed Keynes's analysis in his 1939 paper on Speculation and Economic Activity, whose 'main purpose' was 'to give a new exposition of Keynes' theory of the own-rates of interest... It stands apart from the rest of the book, arguing the case for the liquidity preference theory of interest on rather different grounds than those put forward in chapters 13 and 14... It is also a particularly difficult chapter to comprehend... Yet I cannot help feeling that if Keynes had made the theory of the own rates of interest, suitably expanded, the centre-piece of his exposition in the *General Theory*, a great deal of the subsequent interest controversy might have been avoided' (Kaldor, 1960, p. 6). In Kaldor's view the theory was an explanation of speculative behaviour. However,

[...] in the real world there are only two classes of assets which satisfy the conditions necessary for large-scale speculation. The first consists of certain raw materials, dealt in at organised produce exchanges. The second consists of standardised future claims to property, *i.e.* bonds and shares. It is obvious that the suitability of the second class for speculative purposes is much greater than that of the first. Bonds and shares are perfect objects for speculation; they possess all the necessary attributes to a maximum degree. They are perfectly standardised (one particular share of a company is just as good as any other); perfectly durable (if the paper they are written on goes bad its can be easily replaced); their value is very high in proportion to bulk (storage cost is zero or a nominal amount; and in addition they (normally) have a yield, which is invariant (in the short period at any rate) with respect to the size of the speculative commitments. Hence their net carrying cost can never be positive, and in the majority of cases is negative. (Kaldor, 1939, pp. 22-23).

Apart from limiting the scope of own rates of interest analysis, there is a further important qualification of Keynes's analysis which should be noted

here, but does not need further explanation in this paper. Keynes argued that differences in own rates of interest cause changes in production to equalise own rates of interest. The theory of capital market inflation, out of which the monetary analysis in the previous section arises, argues that changes in production in general, and fixed capital investment in particular, arise in response to changes in corporate balance sheets. In particular, changes in the amount of a company's financial liabilities, relative to its liquid assets, determines its inclination to invest in fixed capital, as opposed to accumulating liquid assets, *i.e.*, its 'liquidity preference'.

Thus Keynes's analysis of own rates of interest is most appropriate to markets for financial securities. The argument in the previous section of this paper suggests that financial investors use own rates of interest analysis as a practical guide to financial investment.

The 'own' rate of interest on a long-term security consists of its:
market yield (dividend or interest divided by the market price); plus
the liquidity premium; plus
the risk premium; plus
the carry cost; plus
the expected appreciation of the security.

The carry cost of financial securities is negligible. The theory of capital market inflation suggests that, when the stock market is being inflated, the greater liquidity that comes with a higher turnover in the market reduces the liquidity premium towards zero. Rentiers then compare an 'own' rate of interest, consisting of the market yield, a risk premium, and the expected appreciation of the security, with the money market rate of interest to determine their liquidity preference. Because of the apparently greater liquidity of the market for long-term securities, the 'speculative' demand for money falls into abeyance during a period of financial inflation. This weakens the liquidity preference of financial investors and therefore inflates the stock market further than if, as Keynes supposed, the expected appreciation of a security was based on recent price *levels*, rather than recent *rates* of price appreciation (Keynes, 1930, vol. II, pp 360-361, and Keynes, 1936, chapter 12).

When the stock market is depressed, liquidity preference among financial investors is kept high because the 'own' rate of interest of long-term securities now has to include a liquidity premium. Even high market yields will not induce a fall in the liquidity preference of financial investors, because there may be minimal or negative expected price appreciation, and from the sum of these has to be deducted a positive liquidity premium, and a possibly increased risk premium if the economy is moving into recession. The resulting 'own rate of interest' then forms the threshold below which short term interest rates must fall if they are to reverse liquidity preference and revive the stock market. If that 'own rate of interest' on long-term securities is negative, then the stock market cannot be revived, because the money rate of interest cannot be reduced below zero. Hence the failure of zero rates of interest to revive the Japanese stock market in recent years.

CONCLUSION

The theory of capital market inflation suggests that monetary policy is undermined by the greater liquidity in financial markets when they are being inflated. While Keynes's 'speculative' demand for money would suggest that liquidity preference would fluctuate to stabilise the financial markets, the higher liquidity in stock markets as they are being inflated would tend to limit the 'speculative' demand for money. Nevertheless, the paper suggests that Keynes's 'own' rate of interest analysis provides an appropriate conceptual framework for understanding the liquidity preference of financial investors.

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