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Are modern economies Wicksellian?

Dangers of runaway credit explosions and implosions

Record levels of mortgage credit

In July both mortgage approvals and actual mortgage lending were all-time records. Mortgage approvals reached £14.9b. and were almost 75% higher than a year earlier; net mortgage lending was £4.5b. and was nearly 66% higher than a year earlier. (Mortgage approvals include mortgages to borrowers who will repay an existing mortgage. Net mortgage lending is the increase in the stock of mortgages.) Newspaper articles have appeared recently, saying that the economic slowdown will curb the demand for mortgage credit and that these figures are no reason for alarm. But this begs a basic question, “does the economy drive the housing market or the housing market drive the economy?”. It needs to be remembered that the value of the housing stock, estimated to have been £1,858b. at the end of 1999, is roughly twice gross domestic product, put at £891b. in the 1999 calendar year.

The dangers of the Wicksellian “cumulative process”

More generally, the debate here is about the nature of instability in a modern economy. Knut Wicksell, the famous Swedish economist (1851 - 1926), proposed a “cumulative process” in an article in *The Economic Journal* of 1907. Suppose interest rates are cut beneath what he called “the natural rate”. In an economy “with the modern forms of credit, which almost always imply the mediation of some bank or professional money-lender”, bank credit expansion is stimulated. That increases the growth of payment instruments (i.e., money), raising commodity prices, but the inflation makes further bank borrowing yet more attractive. With interest rates kept beneath the natural rate, credit and money expansion accelerate, “and the prices of all commodities...rise and rise and rise without any limit whatever”. The means of curing this malady (and indeed a possible downward cumulative process as well) lies not in “some more or less fantastic scheme like that of a central issuing bank for all the world”, but “simply” in a “proper manipulation of general bank-rates, lowering them when prices are getting low, and raising them when prices are getting high”.

The housing market can drive the economy rather than the economy drive the housing market

Substitute the phrase “house prices” for “commodity prices” here, and it is obvious how nowadays upward and downward Wicksellian cumulative processes might be possible. If interest rates are too low (relative to the expected return on houses), people borrow as much as they can, creating new bank deposits and raising money supply growth. That sparks off more house price inflation. The expected own return on houses (which includes house price appreciation as well as actual or imputed rent) rises, which encourages yet more mortgage credit. The process is cumulative, with money growth and general inflation being caught up in the instabilities of the housing market. The housing market drives the economy rather than the other way round. (It could certainly be argued that this was the direction of causation in the boom-bust cycles of the early 1970s and late 1980s.) If so, the current boom in mortgage credit is worrying, even if the Bank of England can justify its cuts in interest rates by emphasising the impact of the world slowdown on UK manufacturing. (This slowdown originates partly in Japan, where a downward cumulative process may be under way. The Japanese problem is discussed in the accompanying research paper.)

Summary of paper on

“Money and the Japanese economic crisis I”

Purpose of the paper

The Japanese economy, the second largest in the world, has struggled with weak demand in the last few years. The paper reviews some theories that economists have proposed to explain and overcome this weakness.

Main points

- * Japan's trend growth rate has slowed since the miracle decades of the 1950s, 1960s and 1970s, but this supply-side failure has been overshadowed by the weakness of aggregate demand.
- * Keynesian economics has suggested an answer to the problem - a “vulgar Keynesianism” which claims that increases in the budget deficit should stimulate demand - and an analytical approach - a “sophisticated Keynesianism” which turns on the idea that Japan suffers from a so-called “liquidity trap”.
- * Vulgar Keynesianism has been a failure. Large increases in the budget deficit have not prevented weakness in aggregate demand, but instead led to a crisis of fiscal solvency (see pp. 4 - 5).
- * The main exponent of sophisticated Keynesianism has been Professor Paul Krugman of Princeton University, who claims that Japan “really is in a liquidity trap”. In the trap increases in the money supply fail to lower interest rates or to stimulate the economy.
- * Krugman's analysis is different from Keynes. Krugman has two traps, which arise from unhealthy beliefs about the future course of the general price level and tangible asset prices. See pp. 7 - 8.)
- * Krugman's two traps - like Keynes' - may help in understanding Japan's problems. But Keynesian analysis is vitiated by its neglect of the institutions of a modern economy, in which a central bank has to be distinguished from a commercial banking system.
- * Krugman criticises the Bank of Japan for insufficiently expansionary open market operations, but the central bank transacts with banks and cannot directly increase non-banks' deposits.
- * Open market operations in which the government purchases assets (probably its own bonds) from non-banks are needed to increase the money supply. Since aggressive attempts on these lines to increase the quantity of money have not been tried, it is not clear that Japan is in a liquidity trap.

This paper was written by Professor Tim Congdon.

Money and the Japanese economic crisis I

Does Keynesianism, either vulgar and sophisticated, have anything to say?

Japan's poor economic performance in the 1990s,

Japan's economic performance - a marvel between 1945 and 1990 - was the least impressive of any of the major industrial nations in the 1990s. The average annual growth rate of real gross domestic product was 1.4% in the ten years from 1991 to 2000, and GDP in 2001 now seems likely to be flat. This compares unfavourably with the growth rate of the industrial world as a whole (as measured by the members of the Organisation of Economic Cooperation and Development) of 2.7%. More worryingly, the economy seemed to become more sluggish as the decade came to a close. Output in late 2001 may not be much higher than in 1997, while policy-makers are uncertain about how to restore growth. The newly-elected prime minister Koizumi has raised hopes of a change of course, but does not appear to have a clear programme.

partly due to supply-side disappointments

To some extent Japan's problem is on the so-called "supply side". The trend rate of output growth has declined because of the economy's deep-seated structural characteristics. Of these the most important are "technological", in broadest sense of that term, and demographic. From a technological standpoint, Japan in 2001 - unlike Japan in 1945 - is a rich country with a highly-skilled workforce and many companies operating at the frontiers of industrial knowledge. Japan therefore cannot grow rapidly by imitating more advanced nations, as it could in the 1950s, 1960s and 1970s. Demographically, Japan's population of working age is falling and will continue to fall for the next few decades. Even if output per head were rising strongly (which it is not), the decline in employment would constrain growth. (Note that Japan's "labour force" - as measured by the OECD - was still increasing quite strongly in the early 1990s and has only started to drop in the last two years. This may have some bearing on the apparent deterioration in performance towards the end of the last decade.)

But demand-side failure has also been evident,

Supply-side failure demands supply-side responses. Economists have much to say here, on the role of regulation, tax, structures of corporate governance and so on, but - ultimately - the key developments in demography and technology are determined by non-economic forces. The focus in this research paper is instead on the "demand side". Rising unemployment and falling prices are symptoms of demand lagging behind output, even though the trend rate of output growth may be under 1 1/2% a year. The Japanese government and the Bank of Japan are keen to promote greater buoyancy in demand, but seem to be genuinely perplexed about how to proceed.

with many competing theories, particularly of Keynesian lineage

Indeed, it is no exaggeration to say that in the late 1990s Japan became a laboratory in economic theory, with different schools of thought advocating alternative policies to stimulate demand and all being frustrated by the economy's refusal to respond. This paper reviews some of these schools of thought, and proposes another and somewhat different approach. Hovering in the intellectual background is the figure of Lord Keynes, whose *General Theory of Employment, Interest and Money* - published as long ago as 1936 - is widely credited with banishing depression

for ever. The persistence of weak demand in Japan challenges the supposed effectiveness of Keynesian diagnoses and prescriptions, as well as raising fundamental issues about the relationship between monetary variables and national expenditure.

**1. Vulgar
Keynesianism -
is fiscal
activism the
answer?**

The first theory - that the best way to boost demand is to increase the budget deficit - might be described as “vulgar Keynesianism”. The idea is often attributed to the *General Theory*, although in fact Keynes’ book says almost nothing about the conduct of fiscal policy. The emphasis on activist fiscal policy as the cure for unemployment originates partly in his journalism and partly in the writings of his disciples, particularly the American economist, Abba Lerner. According to Lerner in his *Economics of Control* (1944), governments should adopt “functional finance” to stabilise their economies and vary the budget deficit according to the state of the economy. When the economy is depressed (with unacceptably high unemployment), the budget deficit should be increased; when the economy is over-heated (with unacceptably high inflation), the budget deficit should be reduced or the government should run a budget surplus. It follows that in the 1990s - with demand generally weaker than thought desirable - the Japanese government ought to have increased its budget deficit, either by increasing public expenditure or by cutting taxes.

**Big increases in
structural budget
deficit in the 1990s
failed to stimulate
the economy**

That is exactly what the Japanese government did. For most of the post-war period it had eschewed deficit financing, with policy-makers fearful of repeating the fiscal irresponsibility, inflation and other disasters of the 1940s. In 1991 the Japanese government’s net financial liabilities were only 6.4% of GDP, one of the lowest figures in the OECD. This cautious approach was abandoned as the economy stagnated in 1992 and 1993. The OECD calculates “the general government structural balance” in its member countries, to abstract from the effect of the cycle on their fiscal positions.⁽¹⁾ According to the OECD’s calculations, Japan had a structural surplus of 1.4% of GDP in 1991, but a deficit of 2.3% of GDP in 1993 and 4.9% of GDP in 1996. Even higher figures were recorded in 1999 and 2000. By the end of 2001 the general government’s net financial liabilities are expected to be over 55% of GDP, well above the OECD average, and its gross financial liabilities will exceed 130% of GDP, the highest figure in the world. Unhappily, the plunge into deficit and debt did nothing to rescue economic activity. Beneath-trend growth was registered in 1993 and 1994, even though these were years when - according to the OECD - fiscal policy was highly stimulative. (See the chart on p.5.) It seems that only one verdict is possible on vulgar Keynesianism of the Lerner variety, “complete failure”.

**and burdened the
Japanese state
with enormous
debts**

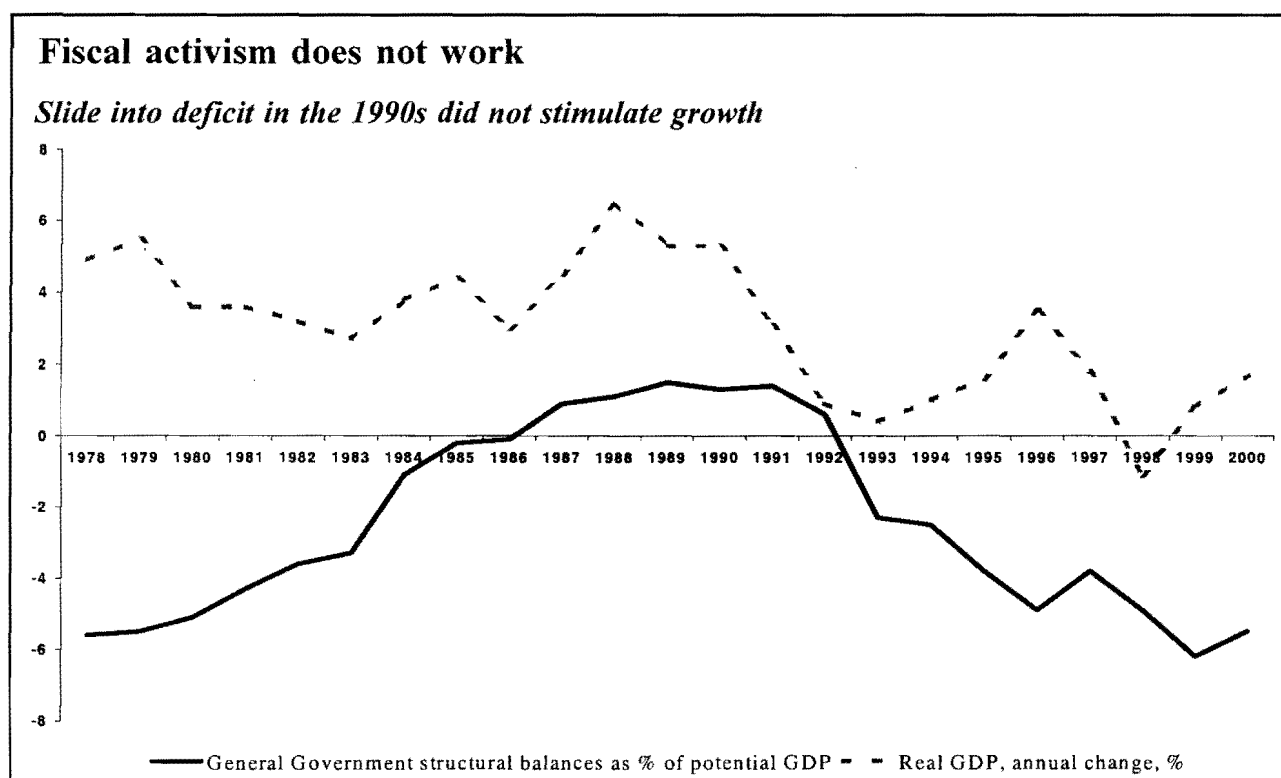
Indeed, in one respect the verdict might be even harsher. Expansionary fiscal policies of the vulgar Keynesian type have not only failed to boost growth, but also saddled the Japanese government with enormous debts. The burden of debt is such that the leading rating agencies have made unfavourable assessments of the credit-worthiness of *the Japanese state*, although *Japan as a nation* is a huge creditor in terms of its international assets and liabilities. Implicitly, the Japanese government has to cut its budget deficit, whether or not that might be expected - on Keynesian grounds - to have adverse consequences for demand and employment. Crude fiscalist Keynesianism has flopped in Japan over the last decade; it is off the agenda.

**The crowding-out
critique of fiscal
activism turns on
fixity of money
supply**

With fiscal activism intellectually discredited by the events of the 1990s, the focus of attention shifts to monetary policy. The possible inadequacy of fiscal stimulus was foreshadowed in other industrial countries in the 1970s, when mammoth budget deficits did not avert recessions. For example, in the UK in the mid-1970s big budget deficits were accompanied by weak economic activity. One argument in the UK at the time was that - ultimately - GDP would be related to the quantity of money. It followed that - if the rate of money supply growth were given because of an official target - an increase in the budget deficit would have no net long-run effect on activity, because the fall in government saving would be offset by a rise in private saving. The private sector would not spend more in response to the government's fiscal initiative, but would instead be "crowded out" and spend less.(2)

**Real money and
output move
together,
suggesting shift of
focus to monetary
policy**

If crowding-out on these lines is the correct explanation for the impotence of fiscal policy in Japan, it becomes important to check the behaviour of the money supply. The preferred aggregate in most Japanese macro-economic commentary is M2 plus certificates of deposit, a broad measure which includes most of the banking system's liabilities. M3 + CDs will be the favoured definition of money in the rest of the paper, although - as will become clear - the role of alternative monetary aggregates is a vexed subject. The chart on p. 6 gives data for both real GDP and real (M3 + CDs) for the last 25 years. There is an obvious contrast between this chart - where the two chosen variables move together - and the preceding chart on fiscal policy and output relative to trend - where they do not. On the face of it, discussion of money and economic activity ought to be more fruitful than discussion of the budget deficit and economic activity.



II. Sophisticated Keynesianism - is the "liquidity trap" relevant?

Influential writings of Paul Krugman

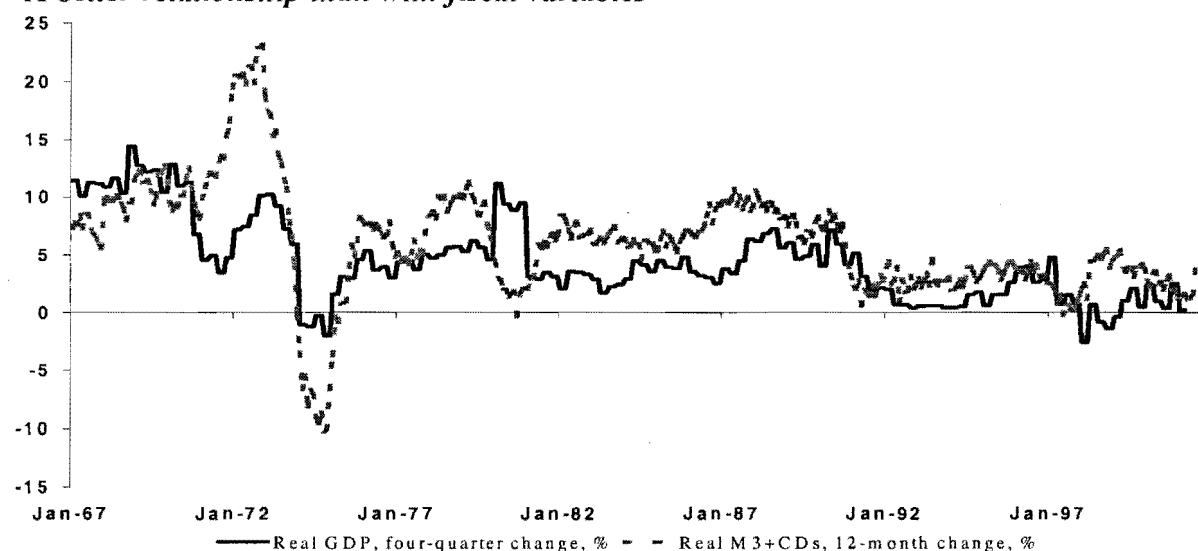
What sort of economy did Keynes assume?

However, the shift in analytical focus from budget deficits to money does not mean that Lord Keynes can be forgotten. His name appears in a number of proposals, with the first revolving around his notion of a "liquidity trap". This was the distinctive theoretical innovation in the *General Theory*. It led to highly sophisticated and complex arguments that - in some special circumstances - monetary policy would be unable to stimulate demand. As monetary policy has ostensibly been unable to do this in Japan, it may be a real-world illustration of Keynes' idea. The rest of this paper will review the debate about the supposed liquidity trap in Japan. Professor Paul Krugman of Princeton University has written a number of pieces - some highly theoretical, some quite popular - referring to this trap, and a consideration of his work will virtually monopolise the next few pages.

How does the liquidity trap work? In the *General Theory* Keynes was theorising about an economy with two types of financial asset, money and bonds, as well as output and employment. It is fairly clear from a footnote in the *General Theory* that Keynes was thinking about a broad concept of money (i.e., one which included bank deposits), but money was regarded as essentially non-interest-bearing.(3) This was logical enough when he was writing, as only a very small proportion of bank deposits paid interest in the 1930s, and it remains realistic in Japan today.(4) By contrast, bonds were interest-bearing and might be best understood as long-dated or undated claims on a government, such as gilt-edged securities in the UK, which paid the same coupon year after year. Because of the stability of the income stream represented by this coupon, the value of the bond fluctuated inversely with the general level of interest rates. (Of course, the value of a such a bond still fluctuates inversely with yield nowadays, falling when yields rise and rising when they fall.) So - in the *General Theory* - money was non-interest-bearing and stable in nominal value, while bonds paid a fixed interest coupon and their nominal value varied with yields.(5)

Real money and real output in Japan

A better relationship than with fiscal variables



Agents balance income from bonds against liquidity from money,

Economic agents have to be willing holders of both money and bonds, given the current level of interest rates. Evidently, the more bonds and the less money in an agent's portfolio, the higher is his (or her) income. Why bother to hold money at all? The answer is that money has greater "liquidity". It can be used to pay for goods and services, whereas bonds cannot. So agents have - at all times - to balance income against liquidity. The higher is the ratio of money to bonds in their portfolios, the greater their liquidity but the less is their income.

so that - normally - if extra money is injected into the economy, bond prices rise and the rate of interest falls

In normal circumstances this need to balance liquidity against income makes "monetary policy" an effective way of influencing demand. Suppose that, in the economy as a whole, agents hold M units of money and N units of undated bonds with a value of N/r_1 , where r_1 is the rate of interest. Suppose also that - by some unexplained mechanism - the quantity of money increases to $M + m$ units. Then, if agents were previously satisfied (in "equilibrium") with their balance between income and liquidity, they must now have excess liquidity and are dissatisfied. Equilibrium can be restored by agents' purchases of more bonds and a rise in their value. If the number of units of undated bonds is unchanged, the rise in the value can occur only through a fall in the rate of interest to r_2 . So the increase in the quantity of money from M to $M + m$ leads to a fall in the rate of interest from r_1 to r_2 and a rise in the aggregate value of bond holdings from N/r_1 to N/r_2 . The drop in the rate of interest then stimulates investment (and perhaps consumption because of a wealth effect from the more valuable bonds), higher investment leads to more national income, and so on.

But, at very low interest rates, a future rise in rates and a fall in bond prices are almost certain

But this is not inevitable. Special circumstances can be imagined when the recovery of demand is aborted. One risk facing bond-holders is that interest rates will increase at a later date, delivering a capital loss. If interest rates are so low that they cannot plausibly fall any further, and are almost certain to rise sooner or later, any holding of bonds is expected to lead to a capital loss in future.(6) The bonds may be willingly held at that very low interest rate, because there is a need for investment income. But - if the quantity of money increases (again by some unexplained mechanism) - agents do not rush to convert excess money into bonds. They just let the extra money pile up in their bank accounts. The demand for "liquidity preference" (in Keynes' terms) dominates the requirement for investment income, and the monetary injection fails to raise bonds prices or to lower interest rates. It therefore does not stimulate consumption and investment. The ratio of money to GDP rises without limit and the economy is caught in a "liquidity trap".

If new money introduced, it piles up in bank accounts, with no effect on economy

Keynes' liquidity trap therefore turns on expectations about bond yields

Krugman has an article in his website (web.mit.edu/krugman/www/japtrap.html) which claims that "Japan really is in a liquidity trap".(7) Its basic argument has similarities to that in the last few paragraphs, but Krugman suggests two rationales for the liquidity trap and both are different from Keynes's version. In the first Krugmanite liquidity trap a positive real return on bonds (i.e., the excess of the bond yield over the inflation rate in) is crucial in explaining agents' willingness to hold them. This contrasts with Keynes' view of the trap which concentrated on the positive nominal return on bonds compared with the assumed nil return on money. Keynes'

Krugman has two liquidity traps,	trap depended on uncertainly-held expectations <i>about bond yields</i> ; Krugman's first trap depends, by contrast, on expectations <i>about the future course of the general price level</i> .
the first turning on expectations about the general price level,	The difference is important, because - as Krugman notes - in an economy with falling prices there is a positive real return on non-interest-bearing money balances. This positive real return makes money more attractive to hold than in an economy with stable or rising prices. The emphasis on the positiveness of the real return as the key to the situation leads Krugman to advocate deliberate inflation. In his words, "The way to make monetary policy effective...is for the central bank to <i>credibly promise to be irresponsible</i> - to make a persuasive case that it <i>will</i> permit inflation to occur, thereby producing the negative real interest rates the economy needs".
and the second on expectations about the price of tangible physical assets	Krugman's second liquidity trap surfaces towards the end of his paper, where "demography" is said to be "the leading candidate" to explain it. The motivating thought seems to be that, as Japan's population of working age goes down, some capital assets will become redundant and their value will fall. So poor investment returns are likely on tangible capital assets (real estate, equipment), whereas money cannot fall in nominal value and may rise in real value if the price level is dropping. It follows that - when the quantity of money increases - people avoid holding more tangible capital assets and let the ratio of money to income rise indefinitely. This second Krugmanite liquidity trap - like the first - is interesting and plausible, but again it needs to be distinguished from the Keynesian version. It depends on expectations <i>about the prices of (and investment returns on) tangible capital assets</i> , not on expectations <i>about bond yields</i> . Like the first Krugmanite trap, it would be overcome if expectations of inflation (i.e., including rising prices of tangible capital assets) could somehow be established.
Krugman seems to have a Catch-22 problem, but - more fundamentally - both he and Keynes have not distinguished between the monetary base and money,	There are many difficulties here. At the simplest level, Krugman has a Catch-22 problem. In his proposal the key to achieving an effective monetary stimulus is renewed inflation, but how can there be renewed inflation without an earlier effective monetary stimulus? To appeal to "credible promises" is pure rain-making. But there is a more fundamental problem. Krugman is trying to put Keynes to work in a modern economy with a banking system and a central bank. However, the <i>General Theory</i> is not about an economy of this type. To repeat, Keynes examined the portfolio decision in a model with money and bonds. He did not consider the portfolio decision in an economy with central bank money (i.e., the monetary base), bank money (i.e., virtually all deposits nowadays, when the note issue has been unified by the central bank) and bonds.
because they have not assumed an economy with a commercial banking system and a central bank	He did not proceed in this way, because in the theoretical model of the <i>General Theory</i> the central bank was not differentiated from the commercial banking system. The <i>General Theory</i> (unlike Keynes' other great work, <i>The Treatise on Money</i>) virtually ignores the institutional underpinnings of money and banking. Far from being a theory applicable to the generality of economies a strong case could be made that it does not apply to any known economy. It certainly does not apply to the Japanese

economy today, where the Bank of Japan - a government-owned central bank responsible for servicing the banking system - is an entirely different sort of entity from the commercial banks - owned by shareholders and servicing companies, financial institutions and individuals.

The various liquidity traps are less convincing because they do not clearly relate to a modern economy with a central bank, where the interest rate *can* fall to zero

The usefulness of Keynes' liquidity trap, and of Krugman's resuscitation of his concept, is drastically undermined by the lack of a distinction between the central bank and the commercial banking system. Keynes' main point was that *the interest rate* might in very unusual conditions have a lower floor. But the term "the level of interest rates" has many potential meanings. Nowadays, in most discussions of monetary policy, it refers to *the interest rate in the short-term money market where the central bank carries out transactions with the commercial banks*. The Japanese example has shown that, if the central bank floods the money market with its own liabilities, there is no floor to this interest rate. *Pace* Keynes (or, at any rate, his interpreters), it can go to zero. As far as the very short-term interest rate is concerned, there is no lower floor to its decline. In that sense the liquidity trap is, and always was, a red herring.

Need to distinguish between the short-term interest rate, and short-dated and long-dated bond yields

To tidy up the usage of terms and to take the subject forward, a distinction needs to be made between

- i. the interest rate in the short-term money markets, which will become simply "the interest rate",
- ii. the yield on bonds with, say, two to five years to maturity, to be called "the short-dated bond yield", and
- iii. the yield on bonds with ten or more years to maturity ("the long-dated bond yield").

What about the short-dated and long-dated bond yields? Keynes seems to remain valid in one sense, because these yields are certainly positive in Japan. However, they fell heavily in the 1990s as the recession took hold and it is a matter of judgement whether the chart on p. 10 implies that there is some lower floor to these yields. Indeed, the yield are so extraordinarily low by the standards of other times and other places, that perhaps it is a little bizarre to worry that interest rates cannot fall further. The more serious issues are how such low interest rates emerged in Japan and whether they are sustainable. It turns out that the introduction of a banking system demands a major extension of the analysis in the *General Theory*.

Banks' demand for bonds is different from non-banks, as their gearing implies extreme aversion to falls in bond prices,

Two points are central. The first - outlined earlier - is the vulnerability of bond prices to changes in the yield. As is well-known, this vulnerability is greater the further "down the curve" (i.e., the longer the period to maturity) that an investor places his or her bets. Long-dated bonds have much greater price fluctuations than short-dated bonds. For a bond with one year to maturity, a change from $x_1\%$ to $x_2\%$ in yield alters the price of the bond by approximately the same amount. (So - for a one-year bond with a coupon of 4% - a rise in the one-year yield from 4% to 5%

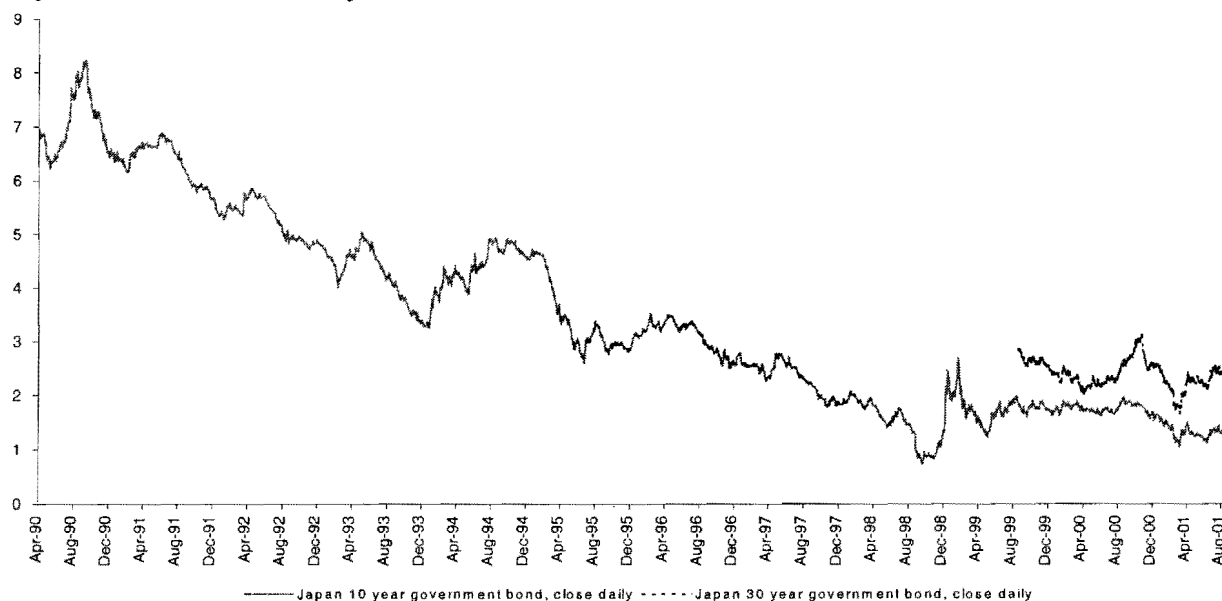
causes the price to fall by 1% from 100 to 99.) At the other extreme, for an undated bond, a change in yields from $x_1\%$ to $x_2\%$ alters the price of the bond by $(1 \text{ minus } x_1/x_2)\%$ with the sign reversed. (So - for an undated bond with a coupon of 4% - a rise in the yield from 4% to 5% causes the price to fall by 20%.) Plainly, for an investor concerned to avoid fluctuations in the price of securities, undated and long-dated bonds are far riskier to hold than short-dated bonds or money.

Secondly, banks are unusual commercial organisations because of their high gearing. Gearing levels vary hugely between industrial sectors, but a fair generalisation for most companies is that debt (excluding trade creditors) is lower than equity. By contrast, most banks have debt - predominantly in the form of bank deposits - which is a very high multiple of equity. A reasonable rule of thumb, implicit in the Basle rules, is that debt is at most 25 times equity, but might more normally be 20 times equity.

The combination of these two points means that banks' demand for bonds is quite unlike that of non-bank agents. Most obviously, because of their high gearing banks cannot stomach big swings in the value of their bond holdings. Because long-dated bonds have considerable capital-value risk from price fluctuations, they are unsuitable for bank portfolios. For example, consider a bank with 100% undated government bonds yielding 4% and a capital/asset ratio of 5%. A 1% rise in yields from 4% to 5% would imply a capital loss equal to 20% of the bank's assets, which wipes out its capital four times over. More generally, banks are willing holders only of short-dated bonds. It follows that long-dated bonds - even bonds with a maturity of over five years - are generally held by non-banks in most industrial countries.

Japanese bond yields: is there a floor?

Chart shows daily values of 10-year and 30-year Japanese government bond yields. Data for 30-year bond available only since 1999.



but bank willing to accept very low bond yields, as long as margin over cost of funds gives good returns on equity

But banks' high gearing is far from being entirely disadvantageous. Although it gives them a severe handicap compared with non-banks in terms of their susceptibility to capital value changes, they can tolerate much narrower margins (and hence lower yields) on their assets, and still achieve the same return on equity. For an ungeared investor the annual % return on capital invested in government bonds is simply the annual yield % (adjusted for capital gain or loss). By contrast, for a geared investor, such as a bank, it is the % margin on assets (i.e., the excess of the annual % yield [again adjusted for capital gain or loss] over the % annual cost of borrowed money) multiplied by the inverse of the equity/asset ratio.(8)

1% yield on short-dated bonds may give handsome return to bank shareholders

An arithmetical example may elucidate the point. Suppose that the yield on a short-dated government bond is 4%, while the cost of borrowed money is 3%. Then the margin is 1%. Assume no capital gain or loss and a capital/asset ratio of 5% (i.e., 1/20). Then the inverse of the capital/asset ratio is 20 and the rate of return on equity is (1% multiplied by 20), or 20%, which is a handsome reward for holding default-free government paper. Indeed, if banks' cost of borrowed money were zero, they could hold bonds yielding 1% and still keep their shareholders happy! In an economy with approximate price stability or mild inflation, a 1% return on government bonds would be completely unsatisfactory to non-banks. But - in such an economy - banks would be relaxed about holding paper with such a low running yield, because their gearing allows them to translate it into a good return on equity.

Japanese banks are in fact keen to hold bonds on very low nominal yields

A few years ago the comments in the last paragraph might have been dismissed as a curio. But Japanese experience since the late 1990s shows that it is a viable situation which can last several years. The bulk of Japanese banks' deposits come from the household sector and are predominantly non-interest-bearing. With the Bank of Japan maintaining a zero interest rate in the money markets, banks' marginal cost of funds in the wholesale markets is nil. So Japanese banks are prepared to hold large and growing amounts of government paper on yields of little more than 1%! Despite amazement in the rest of the industrial world at the lowness of Japanese bond yields, the situation is not the result of strange tribal customs in Tokyo financial circles, but is understandable and logical. (In qualification, if there were significant maturity mismatch in banks' balance sheets, their behaviour would be potentially quite risky. If inflation were to return three or four years from now, their funding costs would rise and they might lose quite heavily on bond holdings currently of, say, over five years to maturity. Note also that non-interest-bearing deposits are not cost free, because banks provide transactions services to their customers. If the cost of deposits is in fact 1/2% a year, a 1 1/4%-a-year bond yield gives a 15% return on equity to a bank with a 5% capital-to-asset ratio, which would be regarded as fine by most bank managements.)

Liquidity trap a limited concept in an economy with a central bank and

What is left of Keynes' liquidity trap, a supposedly immovable lower floor to interest rates, in an economy with a central bank and a banking system? The answer is that it is a quite limited concept. The central bank can drive the interest rate to zero by announcing that it will lend to the banking system at that figure. Meanwhile the banking

**commercial
banking system**

system's demand for bonds is such that the short-term bond yield can remain at little more than 1% for many years. Only the downward rigidity of the long-term bond yield still needs to be discussed.

**Two kinds of
money in a modern
economy**

But even this is not entirely convincing in today's Japan. To repeat, the implications of the monetary arrangements of a modern economy need to be thought through properly. In an economy with a central bank and a commercial banking system, there are two kinds of money, not one. The first kind is *the high-powered money which is a liability of the central bank*; the second is *the bank deposit money which is a liability of the commercial banks*. Keynes' central claim with the liquidity trap - now echoed by Krugman - was that increases in the quantity of money do not lower interest rates because agents are happy for their money balances to rise indefinitely relative to their bond portfolios. The questions have to be asked, "to what kind of money was Keynes referring in the 1930s?" and "to what kind of money is Krugman referring in the Japanese context at the start of the 21st century?". Did Keynes mean high-powered money issued by the central bank or some wider money concept? And what concept of money is at work in the trap that Krugman has in mind?

**To what kind of
money does the
notion of a liquidity
trap apply?**

**Krugman is
muddled on the
type of money at
work in his analysis
and on how it
enters the economy**

Bluntly, the *General Theory* is unsatisfactory on this sort of question, because - to repeat - Keynes made no distinction in the *General Theory* between the central bank and the commercial banking system. As macroeconomists have had over 60 years since the *General Theory* to tidy up the subject, Krugman might reasonably have been expected to be more definite, precise and consistent in his use of words. But he is in a muddle. At one point in the website article he describes a mechanism by which money might enter and leave the economy. "[M]oney is created or destroyed by the government via open market operations each period - that is, the government enters the capital market and buys or sells bonds". Presumably this means that the government carries out purchases (sales) of bonds *from (to) non-banks* and pays for them by crediting (debiting) the requisite sums to (from) their bank deposits.

But at a later point the Bank of Japan, not the government, is taken to be the key agent involved. The Bank is criticised for not making clear that it will restore inflation by having a sufficiently expansionary policy on the monetary base. To quote, "the Bank of Japan does not announce whether its changes in the monetary base are permanent or temporary". Implicitly, the monetary base is seen as the crucial determinant of the money supply, while the monetary base is changed by the Bank of Japan carrying out purchases and sales of bonds *from and to the banks*.

**and two types of
open market
operation need to
be distinguished**

Krugman has referred to two different types of open market operation and confused them. (He is far from being the only economist in a tangle on this subject.) *Open market operations of the first type - between the government and non-banks - are quite different from open market operations of the second type - between the central bank and the banking system*. Whereas a Type I operation has a direct and immediate effect on the quantity of money, a Type II operation has no such effect, and relies for its wider macroeconomic effectiveness on banks' response

The distinction between Type I and Type II open-market operations

to their excess or deficient holdings of monetary base. For the reasons already discussed, Type I open market operations are typically conducted in long-dated bonds and Type II in short-dated bonds. (The directness of the effect of Type I open market operations on the quantity of money is easy to explain. As non-banks pay for bonds issued by the government their bank deposits fall; as they sell bonds to the government their bank deposits rise. Type II open market operations alter banks' balances with the central bank. Such balances are part of the monetary base, but - in most countries' systems of definitions - they are not part of the quantity of money.)

Type I open-market operations needed to increase money supply and reduce long-dated bond yield, but these operations are not the Bank of Japan's job alone

So what type of open market operation is the right one to pursue in Japan today? What does Krugman really want? It has already been shown that "the interest rate" as such, the very short-term rate that the Bank of Japan determines by its operations with the banks, is nil; it is also evident that the short-dated bond yield is as low as it could conceivably be, helped by both the Bank of Japan's willingness to conduct the appropriate Type II open market operations and the gearing which is intrinsic in bank balance sheets. Contrary to the liquidity trap notion proposed in the *General Theory*, interest rates have not had a lower floor. If the liquidity trap remains relevant, it can be only because the long-dated bond yield is too high. This may indeed be so, but the analysis points to Type I open market operations as the correct antidote. *Large-scale purchases of long-dated bonds from non-banks by the government are needed.* Krugman's criticisms of the Bank of Japan are overstated and to some extent misplaced. *As the Bank of Japan does not transact directly with non-banks, its actions do not have a direct effect on the quantity of money.*

Two types of open market operation

	Type I	Type II
<i>Agents involved</i>	Government and non-banks	Central bank and commercial banks
<i>Instruments involved</i>	Typically, long-dated government debt	Short-dated government debt, Treasury bills, eligible commercial bills
<i>Direct effect on monetary base</i>	Yes, but normally reversed by offsetting Type II operation	Yes
<i>Direct effect on quantity of money (i.e., inc. bank deposits)</i>	Yes	No
<i>Indirect effect on quantity of money</i>	Direct effect dominant	Possibly

Arguably, Japan is in a liquidity squeeze, not a liquidity trap

Not clear that Japan is in a liquidity trap

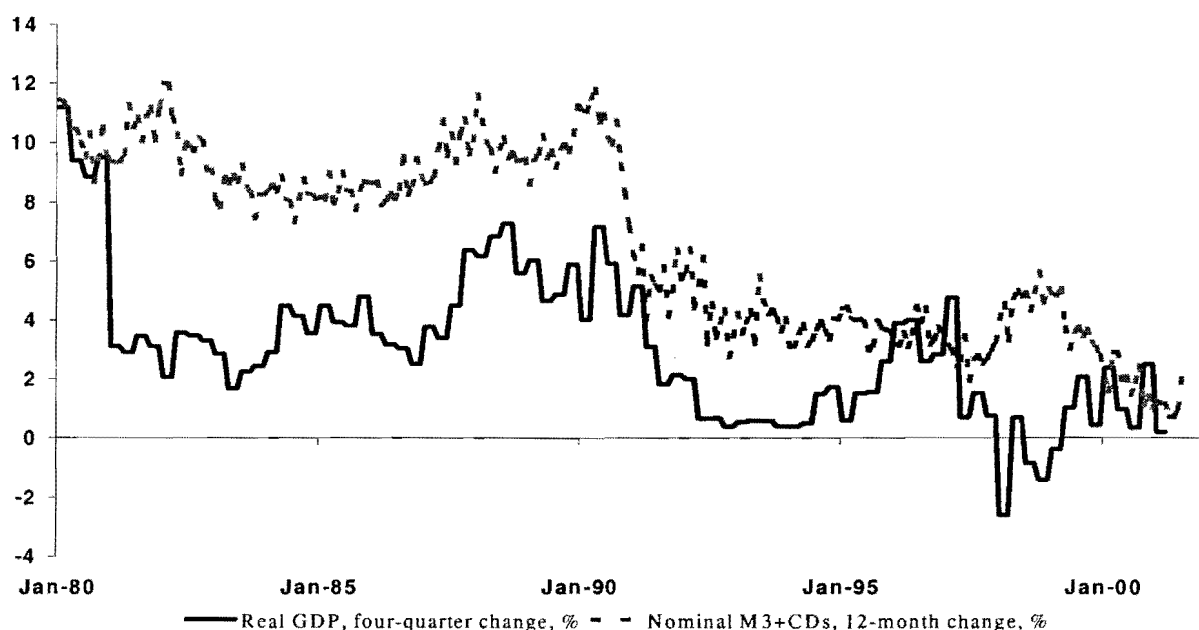
and advocacy of faster money growth remains valid

If aggressive Type I open market operations had been implemented by the Japanese government, if money supply growth had accelerated and if the economy had failed to respond to a fall in the real long-dated bond yield, Krugman would be right. Japan would be in a liquidity trap. But these are not the facts of the situation. The Japanese government has not endorsed aggressive Type I open market operations, and the growth rate of the money supply has been and remains sluggish. Japan would be in a liquidity trap if rapid money supply growth were accompanied by unchanged bond yields and persistent demand weakness. But, with money supply growth still very low (see the chart at the end), a case could be made that Japan suffers from a *liquidity squeeze* (i.e., a *shortage of real money balances*) rather than a *liquidity trap* (i.e., the *stubborn refusal of bond yields to fall in response to big increases in the money supply*).

The notion of a liquidity trap – whether of a Keynesian or Krugmanite variety – is fascinating, but does not clearly apply to modern Japan. There is every reason to expect that demand and output will respond, in the normal way, to an upturn in the rate of money supply growth. That is what the Japanese authorities must try to achieve. A further conclusion of the discussion is that Type I open market operations (i.e., purchases of bonds *from non-banks by the government*) - as distinct from Type II open market operations (i.e., purchases of bonds *from commercial banks by the central bank*) - are a vital weapon in policy-makers' armoury. This conclusion will be developed in the second research paper on money and the Japanese economic crisis, to appear in the next *Monthly Economic Review*.

Money supply growth in Japan

Chart of nominal growth rate of M2 and CDs since 1980



Notes

- (1) “General government” encompasses both central and local government. Note that the “structural deficit” is the right concept for assessing the effectiveness of Keynesian policies. The aim is to identify the effect of discretionary changes in fiscal policy on the economy. The effect of the economy on the budget deficit has therefore to be isolated first.
- (2) The author developed these ideas in popular form in a newspaper article in *The Times* in 1975. (See T. G. Congdon ‘The futility of deficit financing as a cure for recession’, *The Times*, 23rd October 1975.) The academic literature on crowding-out is large and rather diffuse, but seems to have played no role in the discussion of the Japanese situation in recent years. The role of the “crowding-out” theory in the attack on government spending in the mid-1970s was noted critically by Sir Alec Cairncross in his book on the 1976 sterling crisis, *Goodbye, Great Britain* (New Haven and London: Yale University Press, 1992). See particularly pp. 146–8.
- (3) See the first footnote on p. 167 of the standard edition of Keynes’ *The General Theory*, where Keynes says that, while “we can draw the line between ‘money’ and ‘debts’ at whatever point is most convenient for handling a particular problem”, his own work relied on a money concept including bank deposits (i.e., broad money). “It is often convenient in practice to include in *money* time-deposits with banks and, occasionally, even such instruments as (e.g.) treasury bills. As a rule, I shall, as in my *Treatise on Money*, assume that money is co-extensive with bank deposits.” (D. Moggridge and E. Johnson (eds.) *The Collected Works of John Maynard Keynes*: vol. VII, *The General Theory of Employment, Interest and Money* [London and Basingstoke: Macmillan, 1973, originally published 1936], p. 167).
- (4) It would be unrealistic in most industrial countries, where a high and rising proportion of bank deposits pay interest.
- (5) The results of any theoretical exercise in economics depend on the nature of the variables set to work in the exercise. So – if we were to start with interest-bearing money and variable-rate bonds – Keynes’ liquidity trap could not happen. But interest-bearing money and variable-rate bonds are found in the real world, and nowadays would be just as valid as variables in a theoretical exercise as the non-interest-bearing money and fixed-rate bonds assumed by Keynes. Mr. Andrew Smithers, the British economic commentator, has proposed that the Japanese government issue more variable-rate bonds with a long period to maturity, which would be attractive to the banks and allow them to expand their balance sheets without worries about a future fall in the bonds’ value. (Professor Gordon Pepper made a similar proposal in the UK in the 1980s and the Treasury issued a variable rate bond, partly in response.) The Japanese government has in fact begun to issue such bonds. The dependence of different theories’ conclusions on the variables they contain (“their aggregative structure”) was emphasised in the third chapter of Leijonhufvud’s *On Keynesian Economics and the Economics of Keynes*. (A. Leijonhufvud *On Keynesian Economics* [New York: Oxford University Press, 1968], pp. 111–57.)

(6) The key sentence is on p. 169 of *The General Theory*, where – after noting the uncertainty about whether the future interest rate will be the same as today’s – “there is a risk of loss being incurred in purchasing a long-term debt and subsequently turning it into cash, as compared with holding cash”.

(7) Krugman’s writings on Japan and the liquidity trap are extensive, and there is a danger of under-estimating their range and subtlety. But the website article – dated May 1998 and called “Japan’s Trap” – seems to be the favourite. His book *The Return of Depression Economics* has a chapter on Japan, where he refers to “a short analytical piece” of May 1998, called “Japan’s Trap”, and says that in it he made “a forceful case for ‘managed inflation’”. The book refers to none of Krugman’s other academic papers on the liquidity trap.

(8) The general formula is $P/K = P/A \cdot A/K$, where P is profit, A is assets and K is capital. For an ungeared non-bank agent, A and K are equal and the return on capital invested reduces to the return on the asset. So – if bonds yield 1% (i.e., P/A is 1%) and no capital gain or loss applies – the return on investing capital in bonds is 1%. But a bank is geared and may have assets which are 20 times capital. The P/K on investing in bonds yielding 1% is therefore 1% multiplied by 20, which is of course 20%.