

The Liquidity Trap and Japan

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Abstract

Monetary policy may be effective in stabilising income via the real balance effect and the exchange rate channel. Even though interest rates of government bonds are subject to a zero lower bound, fiscal and monetary policy may be employed to change Tobin's q in a multi-asset model and thereby stimulate investment. Foreign exchange intervention, whether sterilised or non-sterilised, may have a positive impact on economic activity. Instead of emphasising inflation targeting, non-monetary policies should be adopted to stimulate aggregate demand to extricate Japan from the liquidity trap. Deflation is the consequence not the cause of the current recession.

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I Introduction

According to Keynes (1936), the liquidity trap is a phenomenon which may be observed when the economy is in a severe recession or depression. The real GDP stops growing and the price level is stable or falling. The nominal interest rate is close to zero and cannot decline further. The speculative demand for money becomes infinitely interest elastic. Any increase in the supply of money will not be used to purchase government bonds but will be hoarded as idle cash balances. Money and short-term government securities become perfect substitutes as the yields from holding both are zero. Expansionary monetary policy works like “pushing on a string” and is incapable of stimulating investment by lowering the interest rate. The LM curve in the Hicks-Hansen IS-LM analysis becomes horizontal. Only fiscal policy is able to raise output and create employment.

The liquidity trap is an enigma which manifests itself under widely different circumstances. During the Great Depression of the 1930s, the United States, for instance, experienced levels of nominal interest rates close to zero (U.S. Treasury bills in 1940 was 0.014 per cent). . There was severe deflation and the stock markets crashed.¹ Unemployment rate at times reached 25 per cent of the workforce. On the other hand, Japan had adopted an almost-zero interest rate policy (0.5 per cent for the target call rate) in September 1995 and a zero interest rate policy since February 1999², a strategy which the Bank of Japan hoped would be successful in lifting the economy out of the doldrums. However, the Japanese economy in the 1990s was nothing even remotely resembling the United States during the Great Depression of the 1930s. Unemployment in Japan in the 1990s was high by post-World War II

standard but had not even reached double digits (5.4 per cent in September 2002). Deflation, when it occurred, was moderate. (The CPI index declined from 103.3 in October 1998 to 100.0 in September 2002). The share prices declined but the stock market did not crash. (The share index of Nikkei-225 went down from a high of 169.6 in March 2000 to 80.2 in August 2002.)

The current liquidity trap can be treated as a ‘partial paralysis’ of the Japanese financial system. The nominal interest rates in the short-term money market are kept at or close to zero. The long-term bond market has very low interest rates. (The 10-year government bond rate is 0.95 per cent in October 2002.) Expansionary monetary policy cannot drive the call money rate negative. Any moves made to the long end of the yield curve are necessarily minor and are expected to have very little impact on economic activity. However, the current state of affair is mild compared to the almost total paralysis of the world economy at the nadir of the Great Depression.

Since Krugman’s (1998a) paper calling our attention to the return of the liquidity trap, quite a large body of literature on the subject has accumulated. A conference volume studying the implications of a lower bound on interest rates for monetary policy was published by the *Journal of Money, Credit and Banking*.³ Bank of Japan has initiated a number of studies on the policy implications of its zero interest rate strategy.⁴

¹ See Galbraith (1955) for an insightful account of the Great Depression of the 1930s.

² See Taylor (2000).

³ *Journal of Money, Credit and Banking*, Vol 32, No. 4 (November 2000).

⁴ See the *Monetary and Economic Studies* published by Bank of Japan.

In this paper, we first examine certain theoretical issues related to the liquidity trap. Even though monetary policy is supposed to be impotent in stabilising national income under such circumstances, we contend that this conclusion is not inevitable if we exploit other channels of adjustment. We then look at the economic performance of Japan in recent years. It is apparent that forcing the official cash rate to zero has not spared the country from recession. The Japanese government should pursue other policies which may be more effective to stimulate aggregate demand and promote economic growth.

In Section II, we use the time-honoured IS-LM-BP model to investigate several channels through which monetary policy may be effective in raising national income.⁵ Even when the rate of interest is zero, the real balance or Pigou effect of expansionary monetary policy may stimulate consumption and shift the IS schedule to the right. For an open economy, expansionary monetary policy, which results in exchange rate depreciation, will promote exports and curb imports. Alternatively, to induce currency depreciation, the monetary authority can use sterilised or non-sterilised foreign exchange intervention. Domestic economic activity may also be stimulated by a rise in foreign interest rate, which causes capital outflows and depreciation of the domestic currency. The exchange rate channel and the expansion of international trade may assist Japan to escape from the liquidity trap.

Investment depends not only on the real rate of interest but may be affected also by Tobin's q , the market value of an asset relative to its replacement cost. If savers can choose not only between money and bonds but can also hold physical

⁵ Krugman (2000) has dropped the intertemporal utility maximization framework adopted in Krugman (1998) in favour of an open economy IS-LM model.

capital, monetary and fiscal authorities may be able to manipulate Tobin's q applicable to certain sectors of the economy. Investment in those sectors may enable the economy to be extricated from the dire straits of economic stagnation. Section III examines policies other than monetary policy which may be effective in resolving the enigma of the liquidity trap. Section IV discusses the merits of some of the proposals put forward by economists to tackle the liquidity trap in Japan. Section V offers some concluding comments.

In this paper, we do not address the enormous structural and institutional problems which Japan faces, not that they are unimportant. On the contrary, the fragile financial system, the weak balance sheet position of the commercial banks and even the central bank, the aging population, the hangover from the bursting of the asset price bubble, are formidable problems to be tackled by the government. We shall examine only the policy issues from a macro point of view.

II The IS-LM-BP Model and the Liquidity Trap

Keynes (1936) distinguishes three motives for holding money. It is held for transaction, precautionary and speculative purposes. Individuals hold idle balances because they can choose between holding money or government securities. If the return on holding the latter exceeds that of the former, they will hold bonds. The price of bonds vary inversely with the rate of interest on bonds. The return on bonds depends on the coupon yield and capital gains or losses from holding the securities. Individuals compare the current rate of interest and the long-run equilibrium rate of interest in deciding how to allocate their idle balances between the two assets.

The defining characteristics of the Keynesian liquidity trap are that the demand for money is infinitely elastic when the nominal interest rate is zero or close to zero. The rate of inflation may be close to zero or may even be negative. Economic activity is sluggish. The real GDP has stopped growing and may be contracting.

Many models have been proposed to analyse an economy like that of current Japan which is perceived to be stuck in a liquidity trap. The "sophisticated" models employed by McCallum (2000, 2001), for instance, use an expectational IS function, an expectations-augmented Phillips curve (EAPC) and a Taylor's rule for setting nominal interest rate. Due to the use of the monetary policy reaction function represented by Taylor's rule, the demand for real balances function becomes superfluous as real balances will not affect the movement of real output, the rate of inflation and the nominal interest rate over time. Money supply becomes endogenous. The use of the EAPC is quite unsuitable to analyse an economy inside a liquidity trap like that of Japan. As the range of fluctuation in the rate of inflation has been small, any expectational errors in forecasting inflation are unlikely to be significant enough to be held responsible for causing the enormous gap between the potential and actual real GDP. The latter has been estimated to be 8 per cent or more in 1998 by Krugman (1998), 6 to 7 per cent by Taylor (2000) and 8 to 11 per cent by Kuttner and Posen (2001).

The behaviour of such a "new macroeconomic paradigm" is analysed by computer simulation of a calibrated model when the key parameters assume certain hypothetical values. Although mathematically sophisticated, these types of models are

not well suited to analysing a complex real-world situation in which there are many channels through which the impact of monetary policy may be transmitted. For instance, the real balance effect cannot be analysed when money does not appear in the model. Foreign exchange operations by the central bank may affect the exchange rate and can take the form of sterilised or non-sterilised intervention. Aggregate demand may depend not only on the real rate of interest but also on Tobin's q , which the new macroeconomic modelling approach has completely ignored. How one can apply Taylor's rule to an economy in a liquidity trap when the nominal rate is constrained by a zero lower bound (ZLB) is a real puzzle.

One of the major problems associated with such calibrated models is that they may be grotesque caricatures of the real world. Many significant variables may not have been accounted for in order for the calibrated models to be tractable mathematically. Instead of assigning rather arbitrary values to the coefficients attached to the interest rate and other variables in an investment function, for instance, one may benefit from examining the empirical data between investment (INV) and the real rate of interest (R10YBR) as in Figure 1. Although the theory postulates an inverse relationship between the two, even a visual inspection of the two series reveals that if there is a relationship between the two, it is not very close. The correlation between INV and R10YBR seems to be positive in the second half of the 1990s, which indicates that the decline in aggregate demand had caused the interest rate to fall.

Since we are not investigating the dynamics of a macroeconomic model when expectational errors may be important in influencing how the system approaches its

steady state, we shall adopt the conventional IS-LM-BP model which has been used by Krugman (1998b) and others. We shall derive certain comparative statics results and expectational errors are assumed to have been resolved before equilibrium is restored.⁶

The basic IS-LM-BP model consists of three equations. Product market equilibrium requires the sum of investment (I), government expenditure (G) and exports (X) to be equal to the sum of savings (S), taxes (T) and imports (Z). We assume that I depends on the real rate of interest (r) and Tobin's q, which is defined as the market value of capital relative to its replacement cost or the actual relative to the desired rate of return for investors to hold the existing stock of capital⁷. X depends on the exchange rate (e), which is defined as the price of a unit of foreign currency in terms of the domestic currency, and foreign income (Y_f). S depends on real GDP (Y), real balances (m) and the purchase of foreign exchange by the monetary authority. When foreign exchange intervention is not sterilised, changes in the domestic monetary base are represented by B.

$$\begin{matrix} - & + & & + & + & & + & - & - & & + & & + & + & + & - \\ I(r, q) + G & + & X(e, Y_f) = & S(Y, m, B) + & T(Y) + & Z(Y, m, B, e) \end{matrix} \quad (1)$$

The signs of the partial derivatives are indicated above the variables.

Money market equilibrium is represented by the LM curve which is given by

$$\begin{matrix} & + & - & - \\ m + B = L(Y, r, q) \end{matrix} \quad (2)$$

⁶ A more ambitious project will be to construct a money-and-growth model to describe the behaviour of a monetary economy which experiences economic growth over time.

⁷ Krugman (2000) mentions "Tobin's q" theory of investment but does not pursue the analysis using the concept.

$m = M/P$ where M is nominal (base) money supply and P is the price level. B is added to the monetary base when the monetary authority undertakes intervention in the foreign exchange market. $B = 0$ in the absence of such intervention or when its impact on M is sterilised.

The balance of payments (B) is the change in foreign exchange reserves and is the sum of the current account balance ($X - Z$) and the capital account balance (K).

$$\overset{+}{X}(e, Y_f) - \overset{+}{Z}(Y, m, B, e) + \overset{+}{K}(r, r_f) = B \quad (3)$$

The exchange rate is assumed to be flexible but it may be a dirty float. When it is a clean float, $B = 0$.

The real balance effect has a positive impact on consumption and imports and a negative impact on savings. There are three assets from which investors can choose. They can hold money which is barren, or hold government bonds which have a yield of r , or hold physical capital, which has a yield of r_K . Tobin's q can be interpreted as the actual rate of return, r_K , which is equated to the marginal efficiency of capital (MEC), relative to the desired rate of return, which Tobin (1969) calls the supply price of capital (SPC). When $q > 1$ or $r_K > SPC$, then net investment will be positive. The demand for real balances is assumed to be negatively related to Tobin's q . Net capital inflows (K) are positively related to r and negatively related to r_f . A rise in e denotes depreciation of the domestic currency. It stimulates X and dampens Z .

P is assumed to be fixed so that an increase in M represents an increase in m . Liquidity trap is characterised by $L_r = -\infty$. Equations (1) to (3) can be used to solve for Y , r and e . The policy parameters are G , m , q and B . Additional parameters

include Y_f and r_f . The solution to the liquidity trap problem involves solving for the impact multipliers of changes in G , m , q , B , Y_f and r_f on Y when $L_r = -\infty$.

Totally differentiating equations (1) to (3), we get

$$\begin{bmatrix} S_Y + T_Y + Z_Y & -I_r & -(X_e - Z_e) \\ L_Y & L_r & 0 \\ -Z_Y & K_r & X_e - Z_e \end{bmatrix} \begin{bmatrix} dY \\ dr \\ de \end{bmatrix} = \begin{bmatrix} dG + I_q dq + X_{Yf} dY_f - (S_m + Z_m) dm - (S_B + Z_B) dB \\ dm + dB - L_q dq \\ (1 + Z_B) dB - X_{Yf} dY_f + Z_m dm - K_{rf} dr_f \end{bmatrix} \quad (4)$$

The determinant of the matrix on the left-hand side is

$$J_1 = (X_e - Z_e)[L_r(S_Y + T_Y) + L_Y(I_r - K_r)] < 0 \quad (5)$$

Firstly, we assume that there is a clean float so that $B = 0$ and $S_B = Z_B = 0$.

Solving (4) for the impact multipliers and using $L_r = -\infty$, we get

$$dY/dG = 1/(S_Y + T_Y) > 0 \quad (6)$$

$$dY/dm = -S_m/(S_Y + T_Y) > 0 \quad (7)$$

$$dY/dq = I_q/(S_Y + T_Y) > 0 \quad (8)$$

$$dY/dY_f = 0 \quad (9)$$

$$dY/dr_f = -K_{rf}/(S_Y + T_Y) > 0 \quad (10)$$

$$dr/dG = dr/dm = dr/dq = dr/dY_f = dr/dr_f = 0 \quad (11)$$

$$de/dG = Z_Y/J_2 > 0 \quad (12)$$

$$de/dm = [(S_Y + T_Y)Z_m - Z_Y S_m]/J_2 > 0 \quad (13)$$

$$de/dq = I_q Z_Y/J_2 > 0 \quad (14)$$

$$de/dY_f = -X_{Yf}/(X_e - Z_e) < 0 \quad (15)$$

$$de/dr_f = -K_{rf}(S_Y + T_Y + Z_Y)/J_2 > 0 \quad (16)$$

where $J_2 = (X_e - Z_e)(S_Y + T_Y) > 0$.

When the economy is in a liquidity trap and under a floating exchange rate regime, expansionary fiscal policy (a rise in G) raises Y by shifting the IS curve to the right which intersects a horizontal LM curve. The exchange rate depreciates which stimulates exports and inhibits imports. Although the rate of interest cannot be depressed by increasing the money supply, the latter shifts the IS curve to the right due to the real balance effect. The exchange rate also depreciates and results in expansion of exports and contraction of imports. As expected, the multiplier effect of an increase in G is larger than that of an increase in m on the assumption that $-1 < S_m < 0$.

An increase in Tobin's q will be expansionary as it stimulates investment and causes the exchange rate to depreciate. A rise in foreign income does not affect domestic income as the stimulating effect on exports is completely offset by the dampening effect caused by appreciation of the exchange rate. A rise in r_f is expansionary as it induces capital outflows and exchange rate depreciation.

Fiscal policy can be in the form of public works and is assumed to be non-Ricardian equivalent in the sense that it is not offset by a corresponding drop in private expenditure. Whether the latter hypothesis is valid is an empirical question⁸. Monetary policy is in the form of changes in the supply of base money. When the economy is in a liquidity trap, changes in G , m , q , Y_f or r_f will not alter the rate of interest. Bonds and money are perfect substitutes.

Tobin's q is assumed to be exogenous in this model and its value can be altered by the fiscal and monetary authorities. Since it is defined as the market price of an asset relative to its replacement cost or the actual relative to the desired rates of return, both the numerator and the denominator may be subject to manipulation by the authorities. For instance, the costs of replacing plants and equipment are affected by taxes and/or subsidies on employment of labour, the purchase of raw materials, the method of depreciation approved by the tax department, etc. The after-tax real rate of return will depend, among other considerations, on the degree of negative gearing permitted by the fiscal authority.

According to Meltzer (1999), if assets other than money and bonds are included, “a liquidity trap means only that one row and one column in the matrix of asset returns has been eliminated. All other returns remain non-zero. Monetary policy remains effective if the central bank buys (or sells) any other asset that does not have a zero yield.” (p. 19) His arguments are pertinent in that Tobin’s q reflects the MEC relative to the SPC. The MEC may be positive even though r is subject to a ZLB.

The monetary authority can use sterilised or non-sterilised intervention in the foreign exchange market to influence the exchange rate. In the case of a flexible exchange rate when the impact on domestic money supply of foreign exchange intervention is sterilised, equations (1) to (3) are replaced by

$$\overset{-}{I}(r, q) + \overset{+}{G} + \overset{+}{X}(e, Y_f) = \overset{+}{S}(Y, m) + \overset{-}{T}(Y) + \overset{+}{Z}(Y, m, e) \quad (17)$$

$$m = \overset{+}{L}(Y, r, q) \quad (18)$$

⁸ The model does not incorporate a government budget constraint nor consider the impact which excessive government debt relative to real GDP may have on confidence, credit rating of government

$$\begin{matrix} + & + & & + & + & - & & + & - \\ X(e, Y_f) - Z(Y, m, e) + K(r, r_f) = B \end{matrix} \quad (19)$$

We can solve for the impact multipliers of changes in B on Y, r and e when the economy is in a liquidity trap,

$$dY/dB = 1/(S_Y + T_Y) > 0 \quad (20)$$

$$dr/dB = 0 \quad (21)$$

$$de/dB = (S_Y + T_Y + Z_Y)/J_2 > 0 \quad (22)$$

When the monetary authority purchases foreign exchange in the foreign exchange market, it injects money into the economy. The impact on the monetary base can be nullified by the central bank selling government securities. The exchange rate depreciates and it stimulates exports and dampens imports. Even though the impact on domestic money supply is sterilised, the effect of the foreign exchange intervention is expansionary and it has zero impact on the domestic interest rate.

However, when foreign exchange intervention is not sterilised, B is not equal to zero in equations (1) to (3). Given that the economy is in a liquidity trap, we can solve for the impact of changes in B on Y, r and e.

$$dY/dB = (1 - S_B)/(S_Y + T_Y) > 0 \quad (23)$$

$$dr/dB = 0 \quad (24)$$

$$de/dB = [(S_Y + T_Y + Z_Y) + Z_B(S_Y + T_Y) - Z_Y S_B]/J_2 > 0 \quad (25)$$

Comparing (23) with (20), we observe that the former is larger than the latter since $S_B < 0$. Foreign exchange intervention when the operations are not sterilised results in a rise in the monetary base and, via the real balance effect, it will decrease savings and

papers, etc.

raise consumption. When we compare (25) with (22), the former is also larger, i.e, the exchange rate depreciates more when foreign exchange intervention is not sterilised.

In summary, using the conventional IS-LM-BP framework, we have demonstrated that monetary policy is not impotent in raising the level of national income if there is real balance effect or if the monetary authority engages in foreign exchange intervention, be it sterilised or not sterilised. Fiscal policy is effective, so are policies which aim at raising Tobin's q . When foreign interest rate rises, this will have a stimulating effect on domestic output.

III Non-monetary Policies

A lot of debate in the literature on how an economy can extricate itself from the liquidity trap revolves around how one can circumvent the ZLB constraint. Krugman (1998a, 1998b) proposes targeting a positive rate of inflation so that the real rate of interest can be negative when the nominal rate is zero. This presumably allows the I and S schedules meet at a negative real rate of interest so that full employment can be restored. The proposal is suspect in that no one knows how negative the real rate of interest has to be before recovery, if ever, will start. The postwar experience with negative real rate of interest was notably during the stagflation period of the 1970s when inflation rose faster than the nominal rate of interest. The negative real rate of interest did not save the world from stagnation.

If monetary policy is constrained by the ZLB, economists should explore other avenues of salvaging an economy mired in a liquidity trap. An obvious candidate is to

adopt fiscal expansion and bestow fiscal incentives on individuals and companies to revive consumption and investment. Australia has been successful in avoiding the liquidity trap and maintaining steady economic growth in the face of worldwide recession by adopting policies which target particular sectors. One such policy is the grant given to first home buyers. The grant has to be invested in newly-built houses, houses under construction or used to purchase residential land which will be developed within a year of the grant being approved. Together with the historically low housing loan rate, it has succeeded in stimulating housing starts and keeping the economy on a steady growth path.

There are other policies which may be effective in stimulating aggregate demand and creating employment. The margin requirements on investment loans can be lowered which makes more finance available for investment purposes. Investment loans can be distinguished by types and different margin requirements may be applied to different classes of investment. To increase the leverage of negative gearing, tax offset of mortgage interest payments may be allowed. Guidelines for the acquisition of properties by non-residents may be relaxed. This may encourage greater capital inflows and foreign direct investment. Fiscal incentives in the form of faster depreciation allowances may be conferred on businesses and industries for undertaking research and development expenditures.

To employ the Marshallian analogue of a pair of scissors, if shifting the LM does not stimulate aggregate demand, we should shift the IS by fiscal means. Unlike Keynes, we do not recommend using deficit finance to dig holes in the ground and refill them afterwards. Even though we live in a new millennium, our needs are by no

means satiated. There are plenty of worthwhile projects which can be undertaken to remove poverty, raise living standards and make the environment safer for the current and future generations. We can invest in projects which make our air and water cleaner, our airports and roads safer, our cities more secure against crimes and violence, our health system providing better health care and coping better with the aging population, and our education system producing more knowledgeable and better trained students by increasing investment in human capital.

IV Proposals to Solve Japan's Liquidity Trap Problem

Many economists have proffered remedies to cure the current economic malaise in Japan. One of the most popular suggestions is that the central bank should target a moderately positive inflation rate so that the nominal rate of interest will not be driven to zero⁹. According to the Fisher equation, the nominal interest rate (i) is the sum of the real rate of interest (ρ) and the expected rate of inflation (π^e).

$$i = \rho + \pi^e, \quad (26)$$

Assume that $\rho \geq 0$, say, $\rho = 2$ per cent. If $\pi^e > 0$, say, $2 \leq \pi^e \leq 3$ per cent, then $4 \leq i \leq 5$ per cent, which is comfortably above zero. The probability of the economy being trapped by the ZLB is considerably less than if $\pi^e \leq 0$.

Fisher (1930) postulates that ρ is determined by the marginal productivity of capital (MPK) or the marginal rate of time preference (MRTP) of individuals. It is invariant to changes in monetary policy and is independent of π^e . On the other hand,

⁹ Subscribers to this proposal include Krugman (1998), Kuttner and Posen (2001), McCallum (2000), Taylor (2000) and Svensson (2001), among numerous others.

the real rate of interest, which the economists participating in the current debate have in mind, is the “financial real rate” (R) which is defined as

$$R \equiv i - \pi^e \quad (27)$$

As defined by (27), R is determined completely by i and π^e , both are influenced by monetary policy. Rewriting (26), we get

$$\rho = i - \pi^e \quad (28)$$

Assume that ρ is constant in the short run. Since π^e is the same in (27) and (28), and $\rho \neq R$, it must be the case that the i's in the two equations are not measuring the same variable or the Fisher effect represented by (26) is invalid.

Perhaps, the nominal interest rate in the Fisher equation should be redefined as the Fisher nominal rate, i^* , and

$$i^* \equiv \rho + \pi^e \quad (29)$$

The nominal rate i in (27) is the nominal interest rate on government bonds which is different from i^* . (27) and (29) are compatible with each other as i is different from i^* whereas (26) and (27) are not. Now, we can have positive ρ and negative R because they measure different concepts of the real rate of return, the former for physical capital, the latter for government bonds.

Figure 2 shows the financial real rate (R) which at times turns negative, as in the early 1980s and from April 1997 to March 1998¹⁰. Many countries have experienced negative R, especially in the 1970s when there was stagflation. The adjustment in the nominal interest rate lagged behind the rapidly rising inflation rate. As a result, the financial real rate became negative after the first oil shock in 1973/74.

Instead of assuming that $I = I(r, Y)$, $I_r < 0$, $I_Y > 0$, as in Krugman (1998b), one should perhaps postulate that

$$I = I(\overset{-}{R}, \overset{+}{\rho}, \overset{+}{Y}) \quad (30)$$

Investment is negatively related to the financial real rate (R), which represents the cost of funding investment, but is positively related to the productivity of capital represented by ρ , and positively related to output (Y) or change in output (ΔY). The inclusion of ρ is akin to incorporating Tobin's q as we did in equation (1).

Krugman (2000) suggests the implementation of inflation targeting to overcome the problem associated with the “credibility problem” of the central bank.¹¹ “... to make it [monetary policy] effective, the central bank must credibly promise to be irresponsible, to maintain its expansion after the recession is past.” (p. 227). Whilst targeting a low two-to-three per cent rate of inflation is almost a ‘standard practice’ by central banks these days, by itself it will not lift the Japanese economy out of the recession simply because the problem in Japan is not with deflation but with the lack of aggregate demand¹². Japan is not deflating like the U.S. in the 1930s. Figure 1 shows that a negative real rate of interest is unlikely to be able to revive investment when the economy is in a liquidity trap.

What is more important to get the economy moving is to raise consumption (C), government expenditure (G), investment (I) and/or exports (X). If individuals’

¹⁰ $RTCR = \% \Delta(TCR/CPI)$ where $TCI =$ target call rate, $CPI =$ consumer price index, $RM2CD = \% \Delta[(M2 + CD)/CPI]$, where the nominal supply of money is $M2 + CD$.

¹¹ Svensson (2001), Taylor (2000) and numerous others have made similar suggestions.

¹² Kuttner and Posen (2001) contend that the current Japanese Great Recession has a demand-side origin.

real personal disposable income is higher, they can consume more. If the chance of being laid off is reduced, workers will gain confidence by spending more freely. If company profit expectations are raised, new investment will be forthcoming. If prospects for exports are enhanced due to improving economic outlook overseas or to currency depreciation and/or government is willing to engage in fiscal expansion, then aggregate demand will be increased. When the latter eventuates, the current recession will end and Japan will emerge from the liquidity trap. Therefore, the government should target aggregate demand instead of inflation when deflation is not the cause but the consequence of insufficient effective demand¹³.

It may be justifiable theoretically to distinguish between a "good deflation" and a "bad deflation".¹⁴ When prices decline as a result of greater competition in the market place or because of technological progress, the aggregate supply schedule shifts to the right. Output increases and the price level drops. This is "good deflation". On the other hand, when the aggregate demand schedule shifts to the left, the price level drops, so does output. A greater output gap is created. This is "bad deflation." Therefore, targeting inflation at x per cent is not ideal if "good deflation" should have been permitted.

Goodfriend (2000) claims that the zero bound on nominal interest rates can be circumvented if a 'carry tax' is imposed on the holding of money balances. Theoretically, this should make any Treasurer or Chancellor of Exchequer "ecstatic", considering the amount of potential revenue such a scheme could rake in. Practically, this is costly to collect, inefficient and likely to be inequitable. Politically, this

¹³ Kuttner and Posen (2001) express the same sentiment by suggesting that "deflation is the result of shrinking aggregate demand".

represents a suicidal act by any party which attempts to sell such a policy at the time of a general election.

'Inflation targeting' and 'carry tax' are two of the seven ways discussed by Blinder (2000) which have been put forward by economists to help Japan escaping from the liquidity trap. The others are the exchange rate channel, twisting the yield curve, open market operations in private assets, a 'money rain' and pumping reserves into the banking system. The exchange rate channel will work if the Japanese yen depreciates and its exports expand as a result. The snag is that the exchange rate is the relative price of two currencies. For the Japanese yen to depreciate against the US dollar and the euro, the latter two currencies must appreciate against the yen. This would not necessarily be accepted by the US and Europe, especially when these economies are not too healthy themselves. Exchange rate depreciation is a beggar-thy-neighbour policy and may not be acceptable to Japan's trading partners when Japan has already a healthy and even increasing current account surplus¹⁵. Competitive devaluation would plunge the world into a similar mess as that created in the 1930s.

There is not much room to twist the yield curve as the long-term (10 year government bond) rate is only 0.95 per cent (in October 2002) when the short-term call rate is zero. Purchases of private securities by Bank of Japan or the Ministry of Finance will not stimulate economic activity unless the funds can be invested

¹⁴ Stephens (2002) makes the distinction between 'good' and harmful deflation.

¹⁵ Svensson's (2001) protests that depreciation of the yen is not a beggar-thy-neighbour policy. His argument is that what is good for Japan is good for the rest of the world.

profitably in the real sector¹⁶. Asset price inflation may end up as a bubble. When the asset price bubble burst in 1990, Japan had not fully recovered after twelve years.

A “money rain” dropped by helicopters flown from Chicago (especially if they were greenbacks) would be greatly appreciated by Japanese voters. If the price level does not rise by the same proportion as the increase in money supply, there will be a real balance effect. As our theoretical discussion in Section 2 has demonstrated, consumption will be stimulated. Imports may rise and cause the currency to depreciate. The only uncertainty is the magnitude of the real balance effect. Figure 2 shows that the growth rate of the supply of real balances in Japan was negative in 1991 to 1993 but has remained positive since then. A positive growth in real balances, however, has not averted recession in Japan in the early 2000s. The real balance effect, hence, is likely to be weak.

Driving the interest rate to zero by using expansionary monetary policy has failed to extricate the Japanese economy from recession. Is this the fault of monetary policy? The answer is no if we delve deeper into the causes of the recession. Monetary policy is not a panacea for curing all kinds of economic malaise. In fact, it may be the wrong medicine for some types of illness.¹⁷ Money, first and foremost, acts as a medium of exchange, a lubricant for the economic system in the classical sense. The interest rate represents the cost of funds. Economic activity does not

¹⁶ The Bank of Japan has been authorised on 18 September 2002 to buy stocks in commercial banks to shore up the weak capital base of their balance sheets which have been impaired by huge amounts of non-performing loans. This is a desperate salvaging operation which has not been implemented to promote economic growth.

¹⁷ To use a medical analogue, Amoxil may be able to cure some viral infection. If the sickness does not go away after administering a suitable dosage of the medicine, it is no use repeating the prescription and possibly aggravating the disease. The use of the interest rate instrument to stimulate aggregate demand is similar. If lowering the interest rate from 3 to 2 to 1 per cent is not helping the economy, forcing it to zero per cent is unlikely to do the trick either. There may be something else wrong with the system which monetary policy cannot cure.

always respond to changes in the cost of funds. Consumption expenditure depends largely on real disposable income and consumer confidence that workers will retain their jobs. Investment expenditure may be affected by the cost of funds but other considerations may overwhelm the interest rate factor. For instance, lack of confidence and pessimistic outlook of future sales may outweigh cheap finance as the decisive factors in investment decisions. If there are many vacant premises, a developer will not construct more dwellings simply because the interest rate is zero. Even if the cost of funds is zero, the American airline industry will not order new aeroplanes after September 11, 2001, because the demand for extra seats is nil. When there is already excess capacity and many airlines are making losses, why would they order more aeroplanes?

What the government should attempt to do is to create an environment which is conducive to investment. Economic growth can be investment-led, consumption-led or export-led. Fiscal incentives may be important in many investment decisions. When the nominal interest rate is reasonable and not excessive in relation to the expected rate of inflation, investment decisions are likely to be determined by other considerations.

Interest rate is a blunt instrument as many economists have observed. Proponents of inflation targeting have often insisted that central banks have a comparative advantage in the control of inflation and not in achieving full employment or promoting economic growth. Therefore, those economists who insists that the Bank of Japan should "push on a string" when the interest rate is zero is akin to flogging a dead horse. The Japanese government should be more imaginative in

devising policies to stimulate economic activity and create employment. When the real rate of interest is already low, one must look elsewhere for inspirations to lift the economy out of recession. We discussed a number of alternative policies which may be implemented to stimulate economic activity in section III. With a hardworking and well-disciplined workforce, it should not be difficult for Japanese ingenuity to come up with alternative proposals to solve the liquidity trap enigma.

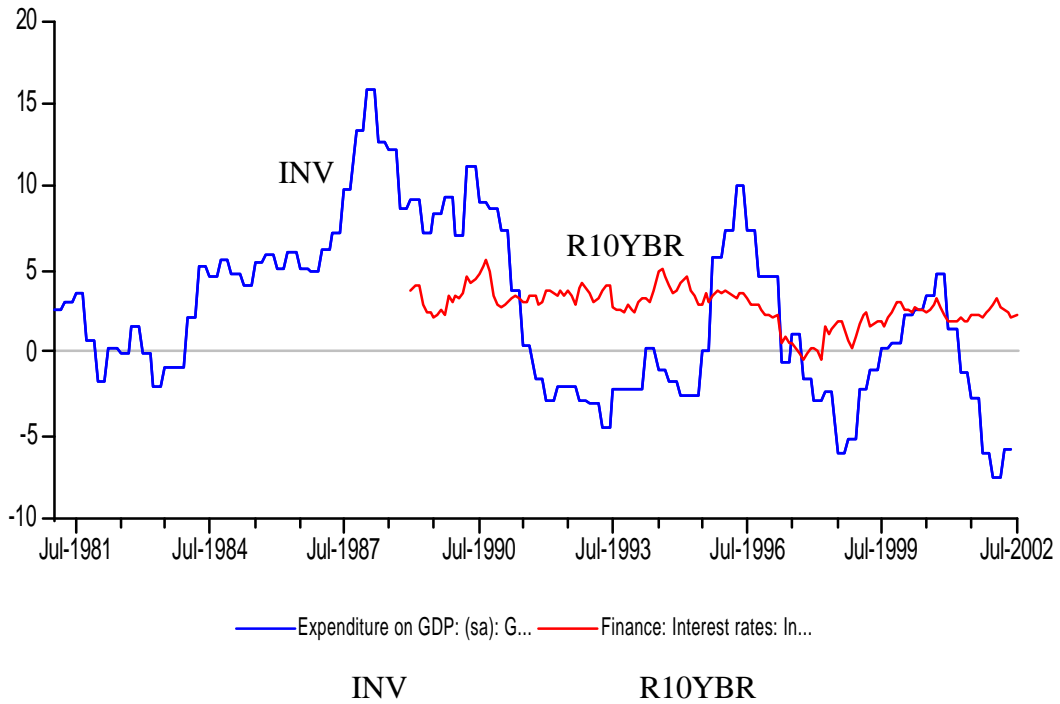
V Conclusion

The Keynesian liquidity trap is an unnecessary evil which could have been avoided if Japan has not been relying so heavily on the interest rate instrument to counter the current slump in economic activity. The real balance effect may stimulate consumption but is likely to be too weak to kick-start the economy. The exchange rate and foreign trade channels are more promising. They would work best if the rest of the world recovers from the current slump. The most promising avenue to expedite economic recovery is to pursue fiscal policy which has the effect of raising Tobin's q .

Some of the more esoteric suggestions like the imposition of a carry tax on money balances should best be buried. Instead the opposite measures like reducing personal income and corporate taxes, permitting faster depreciation allowances related to R & D expenditures, lowering margin requirements for investment loans, providing subsidies for export enhancement and other fiscal incentives may be introduced. Monetary policy should be assigned the role of ensuring financial stability rather than the task of demand management. Let the Bank of Japan target inflation (meaning price stability) if it so wishes, but the fiscal authority must target effective demand (real GDP) if Japan is to extricate herself from the liquidity trap.

FIGURE 1

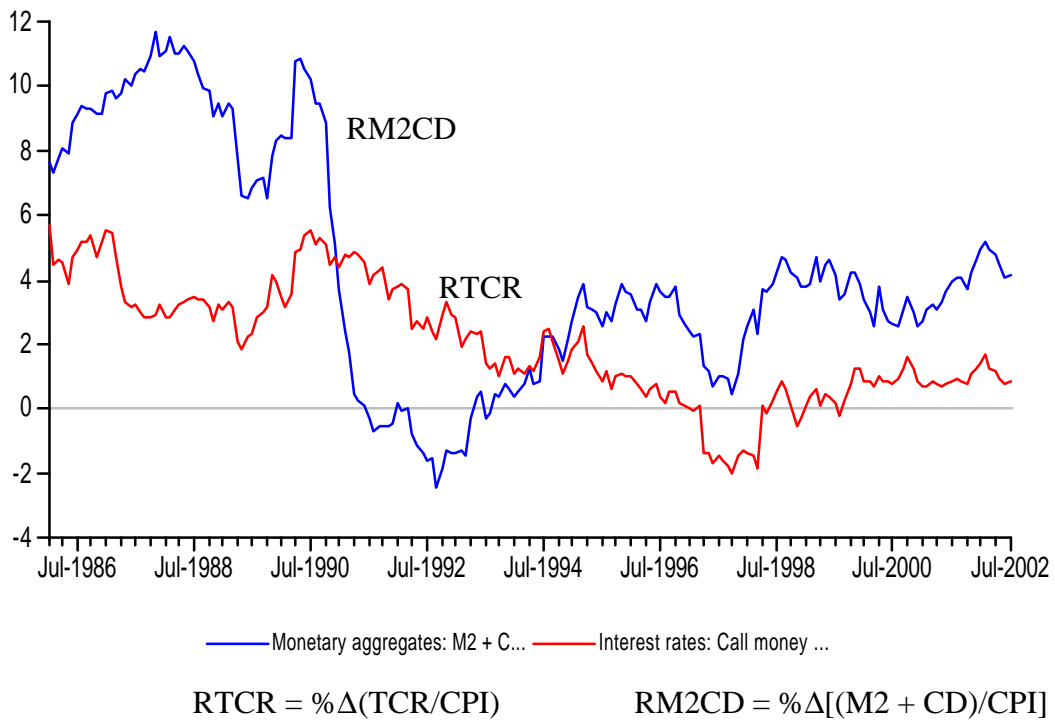
Japan: real 10-year government bond rate & rate of change of investment
% change,



Source: DXDATA

FIGURE 2

Japan: real target call rate and real M2 + CD growth rate



Source: DXDATA

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