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**Hayek, Keynes and Japan: Asian Recession from an
'Austrian' Perspective**

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HAYEK, KEYNES AND THE JAPANESE RECESSION: AN 'AUSTRIAN' PERSPECTIVE

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Introduction:

Should growth in Japan surpass tentative forecasts for its first year, the turn of the millennium would mark the end of the most severe recession to be experienced by an industrial country since the 1950s (IMF, 1999, p.77). Although characterised by stagnation rather than by output contraction, her macroeconomic performance since 1992 appears to challenge a key assumption in recent literature that aggregate outcomes may be explained by attempted optimisation at the individual level. A noteworthy and explicit response to this conflict between theory and recent experience has been to re-examine whether the insights of Keynes, especially his hypothesised 'liquidity trap', might be rendered compatible with modern theoretical sensibilities (Krugman, 1998). Despite Keynes' own doubts as to its empirical relevance, his 'limiting case' is currently seen as having potential application to the analysis of deflation beyond the particular context of Japan (Keynes, 1936, p.207, Buiter and Panigirtzoglou, 1999).

In the absence of a satisfactory explanation for the underlying weakness in aggregate expenditures, however, it is argued below that the liquidity trap diagnosis risks furthering the advocacy of policies that could prove damaging to recovery both in Japan and in the surrounding region. The perspective adopted arises from an alternative view of economic crises which also provided inspiration for the modern 'equilibrium' models of the business cycle (Laidler, 1994). The theory developed

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from elements of the 'Austrian' tradition by Friedrich Hayek was controversial from the outset and was to be eclipsed in practical terms by the writings of Keynes. Nevertheless, Hayek's insistence that the analysis of recessions must begin with their origins in initial conditions of equilibrium has parallels in modern theoretical developments, as well as an immediate practical attraction in the present context (Hayek, 1935, p.34).

While a liquidity trap may be compatible in principle with 'optimising' behaviour under recession conditions, there is little agreement as to why such a condition should have arisen in the first instance. Beyond its intrinsic interest a systematic explanation of the causes of the recession might provide insight into the appropriate design of remedial policies. The Austrian theory is therefore reviewed in summary below prior to the presentation in these terms of an interpretation of the Japanese recession. Finally, despite the 'policy pessimism' sometimes associated with Hayek's theory, the subsequent discussion will suggest measures which, while consistent with the analysis, stand in contrast to the prevailing emphasis on aggressive demand-side expansion.

Money, capital structure and the origins of recession:

Hayek's analysis of macroeconomic fluctuations was based on Böhm-Bawerk's capital theory in which emphasis is placed on the time dimension of investment decisions. Capital investment here permits the use of more time consuming ('roundabout') production processes where the implied additional 'waiting' is rewarded by inherently higher productivity in terms of finished consumer goods. It was the converse of this argument, that a fall in interest rates generated by increased waiting (saving) would lead to a lengthening of production processes, that was

challenged in the course of the 'reswitching' controversy (Samuelson, 1966). Nevertheless, the framework is adopted here on the grounds that it may provide a reasonable interpretation of aggregate tendencies while also, through one of its distinguishing characteristics, drawing attention to a central aspect of the Japanese experience.

With Keynesian analysis traditionally concerned to ensure by demand management the full employment of a given productive capacity, potential linkages between such policies and the evolution of structures of production were not a focus of attention. The contrasting preoccupation of the Austrian approach with connections between monetary and real sector developments also distinguishes it from the modern macroeconomic literature that its equilibrium perspective is thought to have encouraged (Hoover, 1988, p. 251). It therefore provides a distinctive basis for examining the Japanese case in which high rates of capital formation preceded economic crisis.

The time aspect of investment is introduced by considering a 'process of production' of finished consumption goods in which quantities of 'original means of production' are employed in sequential stages of processing. Taking labour as the uniform 'original' factor, a process of production in which equal quantities of labour are added successively to work on the intermediate output of the immediately preceding stage may be depicted as in Figure 1 below:

FIGURE 1

Adopting the further assumption that all outputs are measured in terms of labour units, the final quantity of consumption goods resulting from this process is depicted by the bold vertical line at T'. The position of this line on the horizontal axis indicates the

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time taken to complete the process, while the height of the upward sloping 'investment function' at any earlier time represents the total quantity of labour 'invested' and absorbed in the accumulated intermediate output to that point (Hayek, *op.cit.* p.38-40). In order to compare outputs arising from time profiles of production differing from those in Figure 1, Hayek adds a value dimension to the earlier diagram and the resulting construction may be used to explain the key propositions linking financial variables to capital structure. With output values measured on the vertical axis, the earlier figure now forms the horizontal plane of the three dimensional system represented in Figure 2 (Hayek, 1934, p.214):

FIGURE 2

Ignoring initially the displaced construction around the dashed axes to the right of Figure 2, the schedule OL' (from Figure 1) indicates that labour is added in uniform amounts at each stage of production until final output is achieved after a time interval 0T'. Each unit of labour now has the same cost OW although the vertical rectangular surface 0WL'L'' shows that these costs are not all incurred for the same length of time. Labour applied at the earliest stage (perhaps producing specialised tools that will be used up facilitating operations in the later stages) is shown at the left of the diagram to be invested for the longest interval OT'. Although under 'stationary conditions' (with each process operating continuously) streams of income from the continuous sales of finished goods will be flowing back in payment to labour employed in earlier stages, the 'return' to labour in the first stage must be regarded as subject to the maximum delay. At the margin, an extra unit devoted to 'finishing touches' (just before T' near L' on the diagram), will generate its return almost

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immediately. By contrast, additional labour in the earliest stage will only receive the value of its extra product after the full production period.

The need to apply a discounting procedure to future receipts implies that that part of the final product to be 'attributed' to labour employed in the earlier stages will have to grow at a rate sufficient to reward the (working) capital necessarily tied up in its employment. In the case of the earliest stage, the value T'' at time T', when discounted at the given interest rate, will yield the sum OW. The same argument in the subsequent stages generates the curve L''T'' with its declining height reflecting the declining interest costs of employing labour in later stages of the production process. Since all the labour employed in this process (T'L') receives the same reward OW, the value of the finished product must both yield this wage bill and cover the accumulated interest cost. The highlighted section T'T''L''L' therefore measures the value of the finished product produced after one complete production period with the central implication that the interest payments are funded entirely out of the greater productivity permitted by the 'roundabout' process of production.

In order to highlight the implications of changing financial conditions for different production structures under this framework an extreme contrast is depicted in the displaced component of Figure 2. In this case, the production process requires all of the labour to be invested in a single stage of production for a time period $0T_1$ (which should be taken to be less than half the length of 0T' in the main diagram). It is clear in this case that the major part of the value of final output (represented by the highlighted rectangle with height T_1T_1') will be exhausted in payments to labour. If an initial equilibrium is now assumed in which both activities are (just) viable at the *given* interest rate the consequences of an arbitrary reduction in the rate are depicted

by the two lowered interest surfaces (indicated by small arrows). If the *actual* revenues generated by the two activities are unchanged, the effect of the fall in interest rates is to raise the profitability of the more roundabout technology. By contrast, it is equally clear that a fall in the real wage will have a greater positive impact on the realised profitability of the less roundabout process.

While these conclusions could have been reached more conventionally, the Austrian focus on the allocation of resources to specific time profiles of production emphasises that commitments may be disrupted by subsequent monetary developments (Garrison, 1994, pp.112-14). Such disruption, however produced, is likely to be more severe the more specific the forms of investment involved and it was in this context that Hayek's theory of economic fluctuations was subject to early criticism. It is clear from the elements presented above that 'investment' here involves the provision of working (or circulating) capital necessary to support labour involved in time-consuming activities. To introduce fixed (durable) capital into this framework was to risk confounding stock with flow considerations (Garrison, *ibid.* p.114).

In a subsequent development of the approach, however, Hayek demonstrated that a continuing stream of final output generated by prior investment in durable equipment could be seen as deriving from a notional time allocation of labour services of the type illustrated in Figure 2 (Hayek, 1934, *op.cit.* pp. 218-20)[1]. A decline in real interest rates would therefore stimulate the investment of 'original' resources in the production of more 'roundabout' fixed equipment (*ibid.* pp.224-5). Modern techniques of project appraisal readily confirm this aspect of Hayek's reasoning (Steele, 1993, pp. 149-60).

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[1] The 1935 reference above is to the second revised edition of *Prices and Production* first published in 1931.

Under the assumed conditions of full employment, such induced investment had to imply a temporary withdrawal of resources from the production of consumption goods. Whereas resources released from their production by prior saving could justify increased capital intensity, a shift could also be the temporary consequence of lower interest rates associated with a rise in credit to the business sector. In this case, however, the resource shift out of consumption goods production amounted to 'forced saving' (Hayek, 1935, *op.cit.* pp. 88-9). The eventual bidding up of (scarce) consumption goods prices would provoke a return of resources to less roundabout techniques capable of enhancing their provision in the near term. This was Hayek's 'Ricardo Effect' and transitional unemployment resulting from the earlier misallocation of specific investment resources would then be its almost inevitable consequence (*ibid.* pp. 92-5).

Before offering an interpretation of the Japanese experience that incorporates a variant of the Ricardo Effect, two controversial elements of the Austrian tradition should be acknowledged. In contrast to more recent literature, the framework implies that monetary expansion is far from 'neutral' in its impact on real activity: the consequences must depend on the initial allocation of the associated credit expansion. Whereas lower interest rates on business loans would promote an emphasis on roundabout processes, Figure 2 also confirms that extra resources provided only for final consumption spending would have the opposite implication. At constant interest rates, an arbitrary rise in the price of final output relative to the given wage would boost the realised profitability of the single stage process by more than that involving the more prolonged gestation period. Policies of aggregate demand expansion may thus be constrained by a capital structure incompatible with the pattern of expenditures they would generate.

Underlying this non-neutrality is a second characteristic of the Austrian approach that places it at variance with recent conventions Rather than involving the efficient processing of all pertinent information, expectations appear in Hayek's characterisation of the business cycle to be driven by recent price developments. The view that expectations were 'elastic' in this tradition was, indeed, made explicit at an early stage (Mises, 1943). Although the repetitive characteristics of business cycles might lead firms to change their behaviour, Mises concluded from their continuation that they had yet to do so. Whether or not this conclusion remains valid, abrupt changes in established macroeconomic policy settings could be sufficient to generate real sector disruption under either expectations perspective. In the case of Japan, the attempt to manage the international value of the Yen in the mid-1980s probably served to confirm an increasingly clear policy objective. The real appreciation of the currency against the $US from 1971 appears to have been a more or less explicit objective of American commercial diplomacy (McKinnon, Ohno and Shirono, 1999). Triggered by bilateral trade imbalances, these pressures were ultimately linked to Japan's' 'structurally' high saving rates. Japanese business might reasonably (and, to date, correctly) have expected Yen appreciation to be a lasting consequence of the conflict.

The Japanese experience after 1985:

Reflecting its role in monetary policy setting, the interest rate data presented in Chart 1 are accompanied by the value for the Yen-Dollar exchange rate (calibrated on the right hand axis) for the years since 1980. With 1980-81 marking peak nominal interest rates following the OPEC price increases at the turn of the decade, the lightly dashed trace reflects the subsequent irregularly declining trend of the US Federal Funds Rate.

With this rate chosen to reflect American monetary policy developments, the relative stability of the (policy determined) Japanese discount rate led to a narrowing of the gap between the two in the years to 1985. The 'Plaza' agreement of September, involving an understanding that official foreign exchange intervention would seek to drive down the value of the US currency, was clearly more successful in securing its objective than was the subsequent 'Louvre' accord to stabilise the $ exchange rates prevailing in early 1987. Nevertheless, some attempt to arrest the slide of the US currency is evident in relative short-term interest rate policies during 1987 and 1988.

CHART 1

The implication that Japanese monetary policy was seeking in these two years to suppress the continuing rise in the Yen is consistent with the more general observation that episodes of increased currency strength have been associated with subsequent monetary relaxation by the Bank of Japan (Ueda, 1999). For present purposes, it is the associated further decline in nominal borrowing costs (the lending rate) that should be emphasised. As US monetary policy acquired a counter inflationary stance between 1987 and 1989, however, the relative strengthening of the $ appears to have encouraged the Japanese authorities to tighten monetary conditions. The associated sharp rise in borrowing costs between 1989 and 1991 is evident from the Chart, as is the subsequent decline of both series as the recession gathered pace from 1992.

Recognising that the earlier theoretical discussion was in terms of real interest rates, the demonstration that nominal borrowing costs were declining during the 1980s need not imply that the perceived real cost of loans was falling. While such a translation would require an index of inflation expectations, Chart 1 also reports a real lending

rate series representing the nominal rate discussed above with the contemporaneous inflation rate deducted. Real borrowing costs on this crude measure appear to have risen as inflation declined between 1980 and 1983. Subsequently, however, a downward trend is apparent with minimum real rates being indicated in 1989. With real borrowing costs falling as the authorities sought to contain a rising currency during the latter half of the 1980s, the earlier theoretical perspective would also draw attention to a further consequence of that appreciation.

Although Yen-based wage indices for monthly earnings show modest rates of increase in Japan throughout the period, it was the behaviour of the real wage that was relevant to the choice of production structure. In this connection, at least in the internationally exposed sector, currency appreciation appears to have had major consequences. Relative unit labour costs reported by the OECD and plotted in Chart 2 confirm the substantial impact arising from the strengthening of the Yen in the second half of the 1980s. The subsequent dependence of this measure on the behaviour of the exchange rate is shown in the 'improvement' in relative costs as the Yen weakened against the $ between 1988and 1990 and, again, in the deterioration implied by the currency's growing strength through to 1995.

CHART 2

The theoretical implication that these relative factor cost developments would increase the degree of production 'roundaboutness' might be confirmed by a rising value for its natural empirical equivalent, the capital-output ratio (Blaug, 1968, pp.525-7). Unfortunately, in addition to the difficulties involved in measurement of the capital stock, its slow rate of turnover is likely to limit the ability of this measure to register the effects of policy developments over a small number of years. The contrasting weakness of the alternative (annual) ICOR calculation as a measure of

supply side developments, however, is that it is affected by the influence of fluctuations in aggregate demand on GDP. As an alternative indicator of changing capital intensity, therefore, a 'synthetic' incremental capital output ratio (ICOR) is displayed in Chart 2.

In this measure, real non-residential private fixed capital formation is divided by the annual change in real GDP implied by the linear (logarithmic) trend of that variable between 1980 and 1997. Although crude, a justification for this procedure may be offered in the present context. Japanese GDP appears to have registered less than its underlying potential growth for most of the period 1982-87. By contrast the pre recession years 1988-92 were characterised by expansion exceeding sustainable values (Bayoumi, 1999, Chart 1). Assuming investment decisions to be based on a longer-term horizon, therefore, the annual ICOR would tend to overstate the underlying investment intensity of growth for the years 1982-87 and to underestimate it for the later period. The linear trend used here follows the potential path suggested by the IMF study for the years until 1992 and is therefore taken to proxy the evolution of aggregate supply capacity. Dominated by the flow of actual investment spending, therefore, this measure (on the right hand scale of Chart 2) suggests a marked increase in capital intensity beginning in 1989 and reaching a peak in the pre-recession year of 1991. With the use of trend values for GDP, the equally striking decline in the ICOR measure from 1992 to 1994 reflects entirely the fall in actual investment spending which has been such a central aspect of the recession.

Macroeconomic policy developments conducive to rising capital intensity having characterised the immediately preceding years, the initiation of recession in 1992 also appears to have involved monetary policy influences. The suggestion in Chart 1 that

financial conditions in Japan were becoming restrictive after 1988 appears to understate the shift in stance as measured by the more comprehensive OECD index of monetary conditions (OECD 1997, p.40). Against the background of a resumption of Yen appreciation against the $ after 1990 (Chart 1) it is clear from Chart 2 that the recession was associated with a sudden decline in the previously elevated level of investment spending. Moreover, as the data presented in Table 1 confirm, the focus of this decline appears to have been rather narrow.

TABLE 1

The table reports real GDP and fixed capital formation over the relevant period with, in each case, a narrowing focus on manufacturing and on the machinery and equipment sub-sector. While real GDP records minimal growth between 1991 and 1994, the decline in manufacturing output is especially severe in 1993. Moreover the sub-sector 'fabricated metals, machinery and equipment' accounted for a half of the manufacturing reduction. While noting that this coincided with a fall in both export volume and in unit values, the role of declining investment spending is especially clear. The decline in fixed capital formation between 1991 and 1994 is more than accounted for by reduced outlays on machinery and equipment. Moreover the decline in these series preceded the sharp decline in export revenues witnessed in 1993. In summary, it appears that relative movements in capital and labour costs that had generated a boom in investment spending in the late 1980s were to be associated with a recession prolonged by the opposite behaviour of that magnitude during the early 1990s.

Interpretation of this development in terms of the theoretical perspective adopted here must rest on a reconsideration of the basis of the Ricardo Effect. Whereas the

economic boom might have been initiated by extra credits granted for investment purposes, at a later stage in the upswing it had been assumed by Hayek that product price increases would outpace wage increases thereby initiating a shift from more to less roundabout production structures (Dostaler, 1994, p.160). For given nominal wages and rental costs of capital, however, it had been objected on conventional grounds that a rise in final product prices should not be expected to produce a shift to more labour intensive processes.

Profit maximisation would require that the ratio of the marginal physical products of any two factors of production would be the same as that of their marginal costs over the same time period. If the latter were no longer changing, the only effect of rising prices under assumptions of constant returns to scale would be to encourage a proportional increase in the employment of both factors. In his review of this controversy, Blaug argues that the Ricardo Effect might nevertheless be rationalised by the introduction of balance sheet constraints on firms' investment spending. Moreover, this interpretation appears to have been consistent with Hayek's own position (Blaug, 1968, p.546).

Since firms typically supply some of their own finance in the form of equity capital, Kalecki's 'principle of increasing risk' would suggest eventual reluctance to increase gearing in order to finance the acquisition of new equipment during later stages of the boom. Labour-using techniques might then be employed in order to economise on investment outlays, thereby validating the Ricardo Effect. However, as Blaug emphasises, the boom itself will permit increased profit retentions to shift the supply schedule of 'own' finance and thereby to enhance the capacity to carry debt. If, therefore, the Ricardo Effect requires the presence of balance sheet constraints, the

latter are likely to become determining factors in the recession when the stance of monetary policy eventually becomes restrictive (*ibid*. pp.547-8).

This view of the Ricardo Effect suggests that a consistent explanation of the recession might be offered despite the absence of disruptive consumer goods price increases on which the Austrian model normally relies. Presumably reflecting the country's high saving propensity, the inflationary pressures that were to trigger monetary policy tightening had been reflected in asset price escalation. Associated with low interest rates this development had earlier furnished an attractive financial context for fixed investment expenditures, and it is clear in retrospect that the opportunity was indulged to excess. One estimate at the close of the 1990s, for instance, indicated that the ratio of net business capital (stock) to *potential* output remained higher than its trend in the pre-recession years (IMF, 1999, p.95).

As an initial index of the impact on business balance sheets of the shift to monetary restriction Table 2 reports OECD data on operating surpluses (value added after deduction of labour costs). Although the data are recorded in nominal values, an absolute decline in the operating surpluses of all industries (including agriculture and private services) is evident in the years following 1991. It is clear before consideration of the impact of higher interest rates, therefore, that business profitability was deteriorating markedly. As in Table 1, the initial series in Table 2 is supplemented by reference to more narrowly defined components. The first of these confirms that the declining surpluses are entirely accounted for by the manufacturing sector, with the sub-sector including machinery and equipment production accounting in turn for a major part of that negative contribution.

TABLE 2

In addition to the underlying decline in surpluses accruing to the industrial sector, a rising commitment to interest payments may be inferred from the increase in business 'gearing' evident over the period of Table 2. Restricting attention to the sum of long term loans and corporate bonds, the commitments of large manufacturing firms having represented 29.2% of shareholders' capital in 1985 rose to a peak of 38.2% in 1993. Small and medium manufacturing enterprises, having registered a ratio of 56.8% in 1985, had debt commitments amounting to 105.6% of their ownership funds by 1996 (OECD, 1998, p.29). The exposure of owners to the financial risks arising from a combination of monetary tightening and declining profitability was, therefore, particularly evident for this category of firms. In accentuated form, the same risks had arisen in the construction and real estate sectors (*ibid*).

The implication that monetary tightening, leveraged through ownership risk, triggered the recession by depressing investment spending reflects the more general observation that capital formation in Japan is strongly correlated with the margin between the rate of return on physical assets and long term interest rates (eg. OECD, 1997 p19). To explain the exceptional nature of the recent experience, therefore, the modified 'Austrian' perspective would emphasise the structural and financial consequences of low interest rates, and an appreciating Yen, during the preceding investment boom. This focus on international cost comparisons as an explanation clearly differs from the accepted view that the Japanese economy is relatively 'closed': exports accounted for only 12.4% of manufacturing production between 1985 and 1990 compared, for instance, with 27% for four large European economies (OECD, 1993, p.68).

Since it is to the demand contribution of exports that attention is drawn by this observation, the impression given must be qualified. If export dependence is low, this

is also the case for the import 'leakage'. Whereas the four European economies depended for almost 26% of their 'apparent consumption'[2] of manufactured goods on imported supplies, the figure for Japan was 5.4% (*ibid*). Moreover, an indirect demand contribution of exports should also be recognised. With GFCF accounting for approximately 30% of GDP in the late 1980s, this component accounted for much of the growth in domestic demand in the pre-recession years. To varying degrees, these expenditures would be motivated by plans connected with exports. As a supply-side perspective would emphasise, both home and export sales generally derive from the same production facilities and, if firms wish to maintain export competitiveness in the presence of changing conditions, production structures throughout the 'tradeables' sector are likely to be affected.

To these domestic implications of changing external cost conditions should be added their consequences for the country's international investment flows. Beyond the import substituting manufacturing plants increasingly established in the key markets of North America and Europe, a major development occurred from the mid 1980s. The Yen-driven increase in relative labour costs also provoked the relocation of the less capital (and skill) intensive activities to the surrounding region. Directed by Japanese multinational enterprises, this process was to achieve macroeconomic significance.

By 1996, total employment in all overseas plants exceeded 2 million, a figure equivalent to 15.4% of domestic employment (OECD 1998, p.30). Over two hundred thousand work places were lost between 1991 and 1994 in the ten manufacturing sub-sectors thought to have been the most vulnerable to cost based relocation (*ibid*.

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[2] Defined as domestic manufacturing production *plus* imports *minus* exports.

p.159). Together with the induced dislocation in the domestic supply chain, this was the 'hollowing out' phenomenon that accounted for at least some of the weakness in domestic manufacturing investment (especially by small firm 'clusters') during the 1990s. Moreover, while the early stages of the process to 1992 had been expansionary on the demand side, with exports of machinery for the new installations more than offsetting declining exports of finished goods, the impact had become unambiguously negative by 1996 (*ibid.* p.27). If this production re-location illustrates the ability of macroeconomic policies to effect inadvertent structural change, action in the short-term should both recognise the developments in the real sector that have already occurred and seek consistency with those more distant developments implied by underlying characteristics of the economy.

A policy reassessment of the liquidity trap:

Faced with severe unemployment during the 1930s, the structural focus of the Austrian diagnosis suggested a 'policy pessimism' that may have accounted for its subsequent lack of practical influence (Laidler, *op.cit.* pp.16-18). With proposed responses to the Japanese recession once more emphasising demand stimuli it is clear that this objection has been little weakened by the disappointing results to date from the numerous fiscal and monetary measures already implemented. The consensus view appears to be that the policies have had little effect because they have not been pursued with sufficient vigour (eg. Posen, 1998).

Expressing doubt that a single fiscal injection could suffice, Krugman emphasises the need for sustained monetary expansion (*op. cit.*). Having demonstrated that a liquidity trap may be consistent with (attempted) inter-temporal optimisation, he argues that recovery requires a negative real interest rate to provoke a switch from future to

present consumption expenditures. While acknowledging that low rates of capital formation have been central to recent demand weakness, he appears to view excessive saving as the key problem (Table 5, p.172). To secure negative real interest rates with nominal rates approaching zero, his proposed solution would involve a commitment on the part of the Bank of Japan to pursue an announced policy of (moderate) inflation over the long term.

Assuming that such a commitment could be made credible, an immediate objection to this proposal would be that the relative price changes produced would be incompatible with the structural developments emphasised by the Austrian argument. As Krugman recognises, the policy would have the same exchange rate consequences as a monetary expansion under more conventional conditions, with the implication that a part of the demand expansion would be in the form of exports induced by Yen depreciation. The earlier theoretical discussion would suggest that this increase in the relative price of final output would shorten production processes and a practical instance is readily envisaged. A sustained depreciation of the currency would undermine the continued export of labour intensive processes to the surrounding region and could, in some cases, promote their repatriation. Introduced as a short-term expedient, the policy would more generally entail supply-side developments incompatible with Japan's traditional saving surpluses.

Although he does not discuss structural consequences, Krugman anticipates the more conventional objection that his proposal would amount to a "beggar-thy-neighbour" policy. He derives from his inter-temporal framework a coefficient defined by this term and, after inserting representative values, concludes that the concern would be largely misplaced. It is clear, however, that his coefficient bears little relation to the

policy as normally understood: the use of depreciation to gain external market share under conditions of imperfect competition. In his consumption optimisation model, by contrast, traded goods comprise a fixed endowment. The only impact on the foreign sector arises if domestic consumption switches towards non-tradeables when, in the presence of domestic price stickiness, monetary expansion permits an expanded supply (Appendix B, pp.185-7).

Drawing on a range of econometric models, a more conventional argument is deployed to counter the trade friction concern. Estimated for the USA monetary expansion yields 'substantial' impacts on the exchange rate but with negligible consequences for the current account (Table 1, p.163). Thus, although export competitiveness is stimulated, the associated income multiplier effects lead to enhanced import demand. Although also a 'large economy with fairly small trade shares' the relevance of these findings to the Japanese case must be questioned. As a fraction of total domestic demand for manufactures ('apparent consumption') imports averaged a little over 13% for the USA between 1985 and 1990 against 5.4% for Japan: stimulation of US demand through monetary expansion would therefore provide relatively greater benefit to her trade partners. Moreover, those foreign industries experiencing increased US competition through $ depreciation would also be more likely to be the beneficiaries of expanded US demand. At 40% the intra-industry trade ratio for US manufacturing over the same period was almost twice as large as the measure for Japan. At that time, five sectors accounted for 90% of Japan's bilateral trade surplus with the larger economy (OECD, 1993, p. 68).

A recent CGE modelling approach appears to underline this concern. Reflecting aggressive monetary expansion, the simulated effect of a 30% real depreciation of the

Yen is associated with an 8% fall in the US output of both motor vehicles and machinery (Noland, Robinson and Wang, 1998). The bilateral trade deficit in vehicles and parts increases by $22 billion and that for machinery by $16 billion, despite a significant improvement in Japanese economic activity. Trade frictions would presumably frustrate bilateral adjustments on this scale and an alternative response to the problem of the liquidity trap might therefore be considered.

Although not immediately connected, an approach consistent with the earlier perspective is suggested by Hayek's own early objections to flexible exchange rates (Hayek, 1939, pp. 63-4). Discussing the potential instability inherent in a fractional reserve banking system dependent for ultimate liquidity on a national central bank (itself holding limited foreign exchange reserves), he offers an opinion that bears directly on the liquidity trap diagnosis:

"---- in consequence of the particular organisation of our credit structure, changes in liquidity preference as between different kinds of money are probably a much more potent cause of disturbances than the changes in the preference for holding money *in general* and holding goods *in general* which have played such a great role in recent refinements of theory" (*ibid.* p.80, italics in original)

Directly applicable to the potential for severe credit contraction when central banks are obliged to respond to reserve losses under a fixed exchange rate regime, it is equally clear that Hayek did not regard floating rates as a satisfactory solution:

"Every suspicion that exchange rates were likely to change in the near future would create an additional powerful motive for shifting funds from the country whose currency was likely to fall ---" (*ibid.* p.64).

Recognising that shifts between domestic and foreign monetary claims may generate disturbances under either regime, Hayek's (then) preferred solution of a rigid gold standard backed by international reserves sufficient to avoid the need for excessive fluctuations in domestic credit hardly appears practical. One recent proposal, however, could offer a parallel mechanism for stabilising expectations and assuring their compatibility with policy objectives. Stressing political economy factors in the Yen's secular strengthening against the $ since 1971, and as suggested above in connection with business investment expenditures, McKinnon argues that this trend subsequently became embedded in market expectations. Accordingly, as US interest rates declined with that country's inflation in the 1990s, comparable Japanese rates were forced towards zero: the uncovered interest parity condition effectively imposed a 'liquidity trap' (McKinnon, 1999).

Rather than attempting to influence inflation expectations, McKinnon proposes a joint commitment by the American and Japanese authorities to influence those concerning the Yen-$ rate. With the background assumption that US inflation would be held at low levels, he proposes agreement on a target forward exchange rate. Without initially attempting to enforce that rate, official interventions would seek to prompt the market rate in the appropriate direction. As a long run commitment by the authorities, expectations might begin to coalesce around the target value rather than continuing to project the customary Yen appreciation. Although international interest parity conditions would then force Japanese rates to rise towards those prevailing in the USA, this nominal increase would not transfer to anticipated real interest rates: inflation expectations would gradually be replacing expectations of deflation. With the latter depressing consumption and investment expenditures, an improvement in aggregate domestic demand would be implied. Nevertheless, a potential difficulty

with this strategy is emphasised by McKinnon. The rise in nominal rates implied by credibility of the exchange rate target could exacerbate in the short term the current balance sheet weakness of domestic debtors.

A partial solution to this dilemma might be suggested in the distinction between a PPP based exchange rate target (between ¥120 and ¥130), as assumed by McKinnon, and an alternative based on medium-run calculations. The real exchange rate compatible with a sustainable current account balance has recently been estimated and implies a substantially more appreciated range for the Yen of between ¥77 and ¥95 (Institute for International Economics, 1998). While there are considerable uncertainties surrounding such calculations, the earlier discussion of the structural changes effected by the currency's past strength suggests a lack of need for significant depreciation over the medium term. Assuming that a nominal target of (say) ¥110 gained credibility over a period of two years, with the implied inflation convergence, an initial 'over' depreciation of 10% towards the approximate values in McKinnon's proposal would be consistent with the temporary maintenance of recent annual interest differentials (approximately 5½%).

The distinction between this proposal and the variant advanced by Krugman is that the latter seeks to achieve a fall in real interest rates by the adoption of an explicit inflation target while leaving the exchange rate to find its own level. The alternative approach specifies an exchange rate target with the implication that inflation would begin to reflect that of Japan's major trading partner. It will be argued below that a 'credible' target for the future exchange rate could permit an equivalent reduction in real interest rates to be achieved with a significantly smaller initial depreciation of the Yen than would be likely under the inflation target strategy. A further potential

advantage of McKinnon's approach may be that although non-sterilised exchange interventions would be required to establish the target, the purpose and eventual limits of these actions would be clear. Moreover, as the target became the focus for expectations, the need for the interventions would decline. The alternative requirement that the Bank of Japan should promote inflation actively over a period of years would be more likely to be resisted on institutional grounds (eg. Okina, 1999).

Conclusions on structural aspects of the recession:

The requirement to achieve an immediate reduction in real interest rates arises from the current depressed state of investment intentions in an economy characterised by high saving. Interpretation of such 'IS' weakness from the present perspective would emphasise the earlier commitment to capital intensive installations that, subsequently, have not been employed to capacity. Even in the absence of excess capacity, and in the anticipation of acceptable returns, balance sheet constraints may act to retard further capital expenditures. From this perspective, an inflation target policy could be seen as having two roles: induced currency depreciation would raise export profitability as inflation eroded existing indebtedness. Recognising these rather transparent objectives, however, the question arises as to whether financial asset holders would not respond defensively. If nominal interest rates remained low, the potential depreciation of the Yen could be much larger than PPP calculations would suggest. With little to guarantee that the inflation target would represent a ceiling as well as a floor, the earlier noted tendency for exchange rate expectations to be 'elastic' in the face of policy uncertainty could produce excessive currency weakness.

An anticipated advantage of the alternative exchange rate target approach would therefore be in terms of international political economy. In return for the co-operation

necessary for the policy's success, the US authorities would gain by avoiding the need for an excessive burden of the adjustment to fall on a restricted range of American industries. In addition, the implication that a smaller part of the recovery would be derived from export expansion suggests that the Japanese authorities would be required to promote new domestic activities. With continued high saving, expanded investment spending would be essential and existing constraints in this connection suggest that much of the expansion would have to be in new enterprises.

A recent review of applied studies has suggested that the potential output gains to be realised from structural reforms could be substantial (Oishi and Towe, 1998). Unusually wide variation in sectoral labour productivity measures is observed, for example, when Japan is compared with other industrial economies (OECD, 1998, p.156). Unfortunately, the short-term consequences of reform policies generally include increased unemployment and it has been suggested on these grounds that they cannot form part of an immediate strategy for recovery (Posen, *op.cit*). Against this position may be noted the continuing pressures, justified or not, from trade partners and the probable necessity for such a commitment in return for US co-operation in establishing an exchange rate target regime. One possible approach would include a phased introduction of market reforms together with a temporary investment tax credit[3]. In anticipation of a more open market environment, an inducement of this type would be likely to stimulate the commitment to preparatory investment spending in a wide variety of sectors. While this spending would be welcome for its immediate employment implications, it would also be consistent with the achievement of desirable structural change.

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[3] Krugman also advocates this measure.

Similarly, if high aggregate saving is to continue to characterise Japan, an increasingly firm exchange rate commitment (given consistent policy settings in the two economies) could support the sustained outflows that limits to domestic investment opportunities would still require. A partial response might also have been found to Hayek's early expression of concern over the potential for dislocation inherent in volatile international asset preferences. It is not clear that subsequent experience in Japan and elsewhere has undermined the case for such a response.

References:

Bayoumi, T. (1999)   'The morning after: explaining the slowdown in Japanese growth in the 1990s' (Working Paper 99/13, IMF, Washington, D.C.)

Blaug, M. (1968)   Economic Theory in Retrospect (Heinemann, London)

Buiter, W.H. and   'Liquidity traps: how to avoid them and how to Panigirtzoglou, N. (1999)   escape them' Bank of England (mimeo. Revised October)

Dostaler, G. (1994)   'The formation and evolution of Hayek's trade cycle theory' in Money and Business Cycles: The Economics of F.A. Hayek (Volume 1, pp. 147-67) (Eds.) Colonna, M. and Hagemann, H. (Edward Elgar, Aldershot, UK)

Garrison, R.W. (19994)   'Hayekian triangles and beyond' in Hayek, Co-ordination and Evolution (Eds.) Birner, J. and van Zijp, R. (Routledge, London)

Hayek, F.A. (1934)   'On the relationship between investment and output' <u>Economic Journal</u> (Vol. 44, June 1934, pp. 207-31)

Hayek, F.A. (1935)   <u>Prices and Production</u> (2nd edition, first published 1931) (Routledge, London)

Hayek, F.A. (1939)   <u>Monetary Nationalism and Economic Stability</u> (2nd Edition, Longmans, London)

Hoover, K.D. (1988)   <u>The New Classical Macroeconomics</u> (Blackwell, Oxford, UK)

IMF. (1999)   <u>World Economic Outlook</u> (October, IMF, Washington, D.C.)

Institute for International Economics (1998)   News release May 13th 1998

Keynes, J.M. (1936)   <u>The General Theory of Employment Interest and Money</u> (Macmillan, London)

Krugman, P. (1998)   'It's baaack! Japan's slump and the return of the liquidity trap' <u>Brookings Papers on Economic Activity</u> (2, pp.137-205)

Laidler, D. (1994)   'Hayek on neutral money and the cycle' in Colonna and Hagemann *op. cit.* pp. 3-26

McKinnon, R.I. (1999)   'Exchange rate co-ordination for surmounting the East Asian currency crises' <u>Journal of International Development</u> (Volume 11, pp. 95-106)

McKinnon, R.I., Ohno, K. and Shirono, K. (1999)   'The syndrome of the ever-higher Yen, 1971-95: American mercantile pressure on Japanese monetary policy' in <u>Changes in Exchange Rates in Rapidly Developing Countries: Theory, Practice and Policy Issues</u> (Eds.) T. Ito and A.O. Krueger (NBER East Asia Seminar on Economics Volume 7, Chicago U.P. Chicago, pp.341-76)

Mises, L.v. (1943)   'Elastic expectations and the Austrian theory of the trade cycle' <u>Economica</u> **NS** 10 (3, pp. 251-2)

Noland, M., Robinson, S. and Wang, Z. (1998)   'The global economic effects of the Japanese crisis' (Working Paper 98-6, Institute for International Economics, Washington, D.C.)

OECD (1993)   <u>OECD Economic Surveys 1992-93: Japan</u> (OECD Paris)

OECD (1997)   <u>OECD Economic Surveys 1996-97: Japan</u> (OECD Paris)

OECD (1998)   <u>OECD Economic Surveys 1997-98: Japan</u> (OECD Paris)

OECD (1998a)   <u>National Accounts: Detailed Tables 1984-96</u> (Volume 2, OECD Paris)

Oishi, I. and Towe, C. (1998)   'Governance, deregulation and economic performance in Japan: selected issues' in <u>IMF Staff Country Report</u> (No.98/113, pp. 146-63, IMF, Washington, D.C.)

Okina, K. (1999)   'The risks of single-minded targeting' <u>Financial</u>

                          <u>Times</u> (London, 10[th]November, p.27)

Posen, A.S. (1998)   <u>Restoring Japan's Economic Growth</u> (Institute for

                          International Economics, Washington, D.C.)

Samuelson, P.A. (1966)   'A summing up' <u>Quarterly Journal of Economics</u>

                          (Vol. 80, pp.568-83)

Steele, G.R. (1993)   <u>The Economics of Friedrich Hayek</u> (London,

                          Macmillan)

Ueda, K. (1999)   'Comment' on McKinnon, Ohno and Shirono (*op.

                          cit*. pp.373-6).

TABLE 1: COMPONENTS OF GDP AND GROSS FIXED CAPITAL

FORMATION

Billions of Yen. All data in 1990 prices	1985	1986	1987	1988	1989	1990	1991
Real GDP	342950	352880	367556	390325	409184	429986	4463
Manufacturing	95718	94230	98613	106506	113490	121219	1275
Fabricated metals, machinery & equipment	38321	39195	40953	46563	51322	56470	617
Gross Fixed Capital Formation	91322	95707	104453	116428	126006	136685	1411
Machinery & equipment	27527	28282	30246	35781	40142	44553	461

Source: OECD National Accounts Volume 2 (1998)

TABLE 2: OPERATING SURPLUS IN INDUSTRY AND MANUFACTURING

Billions of Yen (Current Prices)	1985	1986	1987	1988	1989	1990	1991
Operating surplus (All industries & pvt. services)	96274	100070	104948	113693	121970	128598	1336
Manufacturing	24561	23329	23778	26530	27879	29125	302
Fabricated metals, machinery & equipment	9940	8140	7861	9872	11567	12610	127

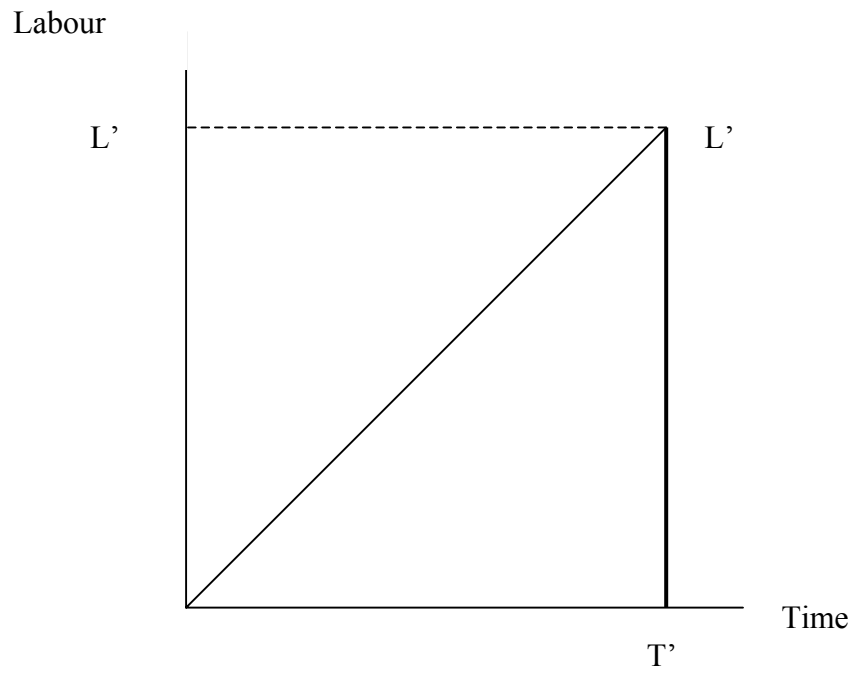*Source: OECD National Accounts Volume 2 (1998)*

Figure 1: The 'Investment Function'
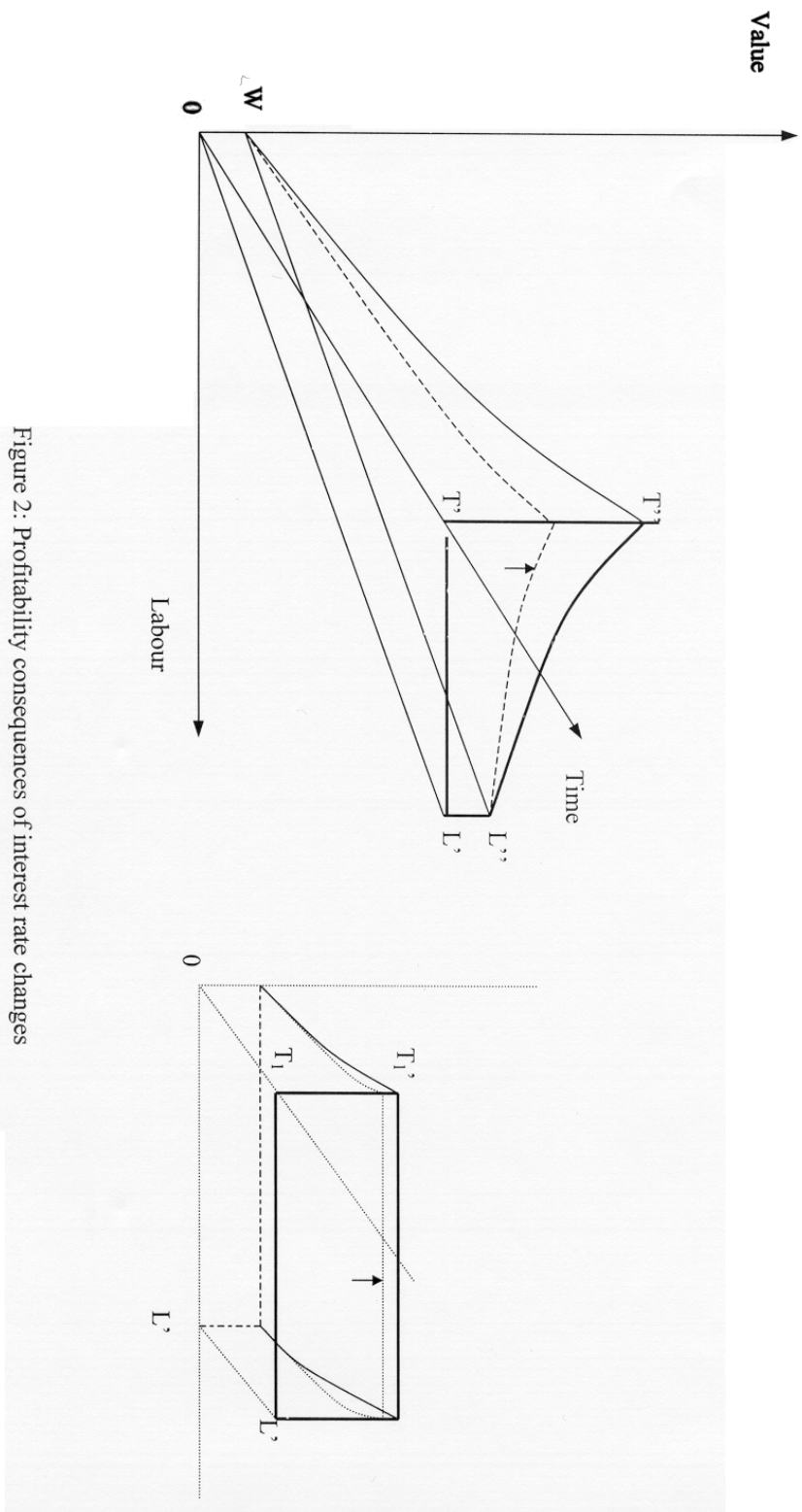
Figure 2: Profitability consequences of interest rate changes

TABLE 1: COMPONENTS OF GDP AND GROSS FIXED CAPITAL FORMATION

Billions of Yen. All data in 1990 prices	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Real GDP	342950	352880	367556	390325	409184	429986	446315	450876	452282	455197	461894
Manufacturing	95718	94230	98613	106506	113490	121219	127598	125822	120841	119986	126554
Fabricated metals, machinery & equipment	38321	39195	40953	46563	51322	56470	61704	59491	56996	56931	62938
Gross Fixed Capital Formation	91322	95707	104453	116428	126006	136685	141163	138981	136269	135243	137600
Machinery & equipment	27527	28282	30246	35781	40142	44553	46122	44213	41118	39803	44440

Source: OECD National Accounts Volume 2 (1998)

TABLE 2: OPERATING SURPLUS IN INDUSTRY AND MANUFACTURING

Billions of Yen (Current Prices)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Operating surplus (All industries & pvt. services)	96274	100070	104948	113693	121970	128598	133699	130841	124831	120413	119053
Manufacturing	24561	23329	23778	26530	27879	29125	30228	25069	18903	15129	16946
Fabricated metals, machinery & equipment	9940	81	7861	9872	11567	12610	12770	9014	5839	4341	6291

Source: OECD National Accounts Volume 2 (1998)