Exchange Rate Systems, Incomes Policy and Stabilization
Some Short and Long-Run Considerations

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Abstract

This paper concerns the choice of a preferable exchange rate system for the longer run of an economy which has finally emerged from an era of major disinflationary disturbance and disinflation. The discussion bears particular application to the Israeli case, but this provides a link to the major issues relevant to the world at large.

The range of practical choices is somewhat restricted, in the near future, by the still pending development of large common currency areas (especially in Europe), but the relevant issues in that potential choice are integrated into the analysis. Substantively, the analysis finds general superiority in a flexible or floating rate system - maintaining the independence of counter-cyclical monetary policy. It explores the major weakness in this alternative (destabilizing speculation) and the factors which many conduce to a common currency solution in the longer run.

Exchange Rate Systems, Incomes Policy and Stabilization - Some Short and Long Run Considerations

I. Introduction, Background and Outline of the Discussion

This paper will deal primarily with considerations relevant to the choice of an exchange rate system following completion of a program of major disinflation. The discussion will show particular application to the Israeli case. But the reader should be able to see that many considerations bear more general applicability.

We begin with the pragmatic distinction between the choice of a long-run and a short-run (or transitional) exchange rate system because of the problems of major disinflation, which have been well illustrated by Israeli experience over the past eight years and even over the longer period since the beginning of our generation-long inflationary wave, which began in 1971 and has still not been fully resolved. The basic point in this distinction concerns an issue which is predominant during a major disinflation and is still important in the choice of a long run system - namely, the fact that disinflation by conventional[1] measures (i.e., excluding incomes policy) engenders transitional recession. This has largely ruled out the institution (as an "anchor" for the price level) of a fixed nominal exchange rate (ER_n) during such a conventional disinflation. For similar reasons, a sudden reduction of the growth rate of nominal money to the rate consistent with the low inflation (π) target, has been ruled out.

On the other hand, a period of major disinflation is also a difficult time in which to institute a free float - although in this case the damage is less certain; largely corresponding in fact to a heightened risk of the potential difficulties of a floating rate even in the long run. These consists mainly in the danger of damaging fluctuations in the rate due to destabilizing speculative flows. The likelihood of such flows is increased, partly by the shifting success of disinflation itself; but still more by the frequent presence (as in the Israeli case) of capital flow restrictions;

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[1] In recent literature more frequently entitled "orthodox disinflation."

the removal of which is liable to set in motion a destabilizing "perverse" movement of the ER (e.g., a capital inflow, tending to lower the ER against the need for an opposite trend - certainly in the nominal rate, and possibly in the real rate as well).[2]

The "safest" policy during such a disinflation (and before the removal of capital controls) is therefore probably an adjustable peg. The disinflation as such can be pursued with incomes policy (direct restraint of wages, prices and the ER_n) or, without it, as part of a conventional package (in either its money growth or exchange rate centered form).[3] There is a considerable literature (and practice) on the idea of an ER centered conventional disinflation; Due to inflation inertia, this approach is likely to generate a serious erosion of ER_r (real rate of exchange, i.e. fall in P_T/P_{NT}) and therefore a large balance of payments deficit which will prove difficult to overcome at the "end of the road."[4] An important practical difference between an ER and a money (M) based conventional disinflation in this respect, is that it would require either an impracticable absolute decline of the domestic price level (especially the price of non-tradables, P_{NT}), or a large upward adjustment of ER_n, and thus of tradables prices (P_T), to correct the balance of payments disequilibrium at the end of the disinflation. This problem does not arise in a money led disinflation, because, although the real money supply (M_r) is "too low" at the end of disinflation (i.e., of the transitional recession), a counter-cyclical rise in the growth rate of M_n does not imply a rise in price inflation ($\dot{P}$); but, essentially, in the rate of GDP growth ($\dot{Y}_r$). Even without a rise in nominal money growth ($\dot{M}_n$), the fall of inflation will imply a gradual rise in real balances (M_r), which will eventually lead to recovery without any boost in

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[2] This occurred in Israel after the 1977 "Liberalization" and has been frequently discussed as a problem in recent liberalizations (notably in Latin America).

[3] The basic theoretical explanation of how "incomes policy," consistently applied, tends to avoid the process of transitional recession in disinflation is set out, with relevant references, in Ablin (1983). In the text here the emphasis is shifted to how an incomes policy assisted disinflation simplifies the ER management problem.

[4] This point is stressed by Liviatan as well as other observers of Latin American experience.

the price level or inflation comparable to that caused by a corrective devaluation.[5]

Thus, an adjustable peg designed to stabilize the ER_t close to its potential GDP (Y_p) level, and to first reach that level if necessary, would best be combined with a temporary incomes policy and a consistent decline in monetary growth to get through the transition of disinflation.[6] If incomes policy is excluded (whatever the reasons, this gives away most of the game), the best conventional alternative is probably a disinflation centered on monetary restraint combined with a flexible peg (which avoids the use of the nominal ER as the leading nominal anchor). As noted, an imaginative use of the ER led approach is also possible - but probably more difficult in practice; and, in either case, the main cost (transitional recession) is not avoided.

We may also note - in closing this "background" look at the short-run or transitional problem of a major disinflation - that the best course (an incomes policy centered disinflation) may take a step-wise or a freeze form. In the later case (wage-price-exchange rate freeze), the "flexible peg" reduces to a temporarily fixed rate.[7]

Outline: In the remainder of this paper, we shall take up sequentially the issues which bare upon the choice of a "long-run" system.

The first topic will be to clarify the theoretical costs and benefits of fixed ER systems,

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[5] Yet practically speaking, not too much stress should be given to this contrast, which could be obviated by a series of relatively small corrections of the ER_n (e.g., by substituting a gradually decelerating ER_n for a complete "fixing"). But note that to avoid the need for a large upward correction at the "end of the road", this policy must not yield to the temptation created by the transitional recession (which will ensue in either form of conventional disinflation) namely, to slow or stop the gradual devaluation if we press through a recession stage in which the balance of payments are balanced or in surplus.

[6] In recent literature, this approach is most frequently called a heterodox disinflation policy.

[7] Ninety-five percent of the Israeli inflation in excess of the OECD norm, as is well-known, was wiped out by this heterodox approach in the later half of 1985. The residual has still not been fully conquered by the subsequent eight years of efforts at orthodox disinflation!

including a common currency.[8] (This, of course, throws a good deal of light upon the contrasting features of flexible or floating rate systems as well). A particular point considered here is the virtual inevitability of imperfect "credibility" and hence "inertia".

In the course of this section, we shall give specific attention to the related issue of the "nominal anchor" function of a pegged ER target (as opposed to monetary targeting under a floating rate.) We also consider "band" schemes and other branches of the fixed rate family (e.g., pegged rates versus a common currency).

We then shift our focus to the alternative benefits and problems of flexible or (at the extreme) floating rates. This points to destabilizing speculation as the paramount potential drawback of such a system and we then pursue this elusive phenomenon in some detail in a variety of asset markets (especially stock and foreign exchange).

We close this section with a look at possible "cures" for this malady.

Finally, we bring together lessons of the entire discussion to bear upon the practical conclusions regarding the choice of a policy system, in the course of which we are forced to note that preferable outcomes in practice are a function of prevailing conditions, subject to change and thus differing across different currencies.

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[8] A note should suffice to point out that the entire discussion of this paper refers to a "non-reserve currency" member of a fixed ER group. Something approaching a de-facto "reserve currency" state is necessary to maintain such a system (technically, to solve the "overdeterminacy" or "N-1" problem). This state plays, in effect, the role of a common central bank (but with a much more parochial policy orientation) in a common currency system. All other members achieve a consistent grid of nominal rates with each other by fixing their ER_n to the reserve currency.

The US dollar played this role in the Bretton Woods system and (essentially) the German DM, in the EMS system (beginning in 1979). The system, in effect, allows the reserve currency state to retain control of its monetary policy - to which the others must adapt - or risk the loss of reserves and the "disgrace" of devaluation. This discipline becomes much more strict and, indeed, well high intolerable, with the elimination of capital flow restrictions.

II. Moving to the Choice of a Long Run System

In briefest outline, the basic economic benefits of a fixed nominal exchange rate (ER_n) (to the extent that it can practically survive) or its close cousin, membership in a common currency area, are simply those of "moneyness." Money fulfills its essential functions (medium of exchange, unit of account, etc.) best when it covers, with constant real value (i.e. constant ER_r, if separate currencies exist) the widest possible range of economic transactions.[9] The term "optimal currency area" seems to imply that the essential benefits of "singularity" in money (i.e., a common currency) rise, up to a certain point of expansion, and then decline. This is consistent with the preoccupation of Robert Mundel (1968) and others who originated this term and conceived of it in the context of various forms of market imperfection (especially limited factor mobility). This can easily cause misunderstanding. The gross benefits in fact go on rising up to a single world money; the net benefits (i.e., less the macro-economic recessionary costs associated with limited factor mobility and price or wage inflexibilities, are likely to reach a peak far below this universal limit. Hence, the "optimal currency area" of Mundel.

More recently Paul Krugman (1990) has presented a strikingly simple organization of this "trade-off" between a flexible and a fixed ER (in practice, a common currency) system.

Unfortunately, the interpretation of this diagram is less simple than he suggests. The crucial variable in this scheme (Diagram A following) is the weight of Foreign trade (i.e., the percentage share of trade in GNP) for a particular country (or currency area). The benefits of a common currency, (i.e., the moneyness benefits) rise with the share of trade in GNP. This is what makes the idea of a separate currency for each town or family intuitively absurd. Yet note that there is an offsetting factor: for a given shock to trade, the necessary size of the real rate of exchange adjustment will be smaller, the larger the trade share of GDP. This reduces the

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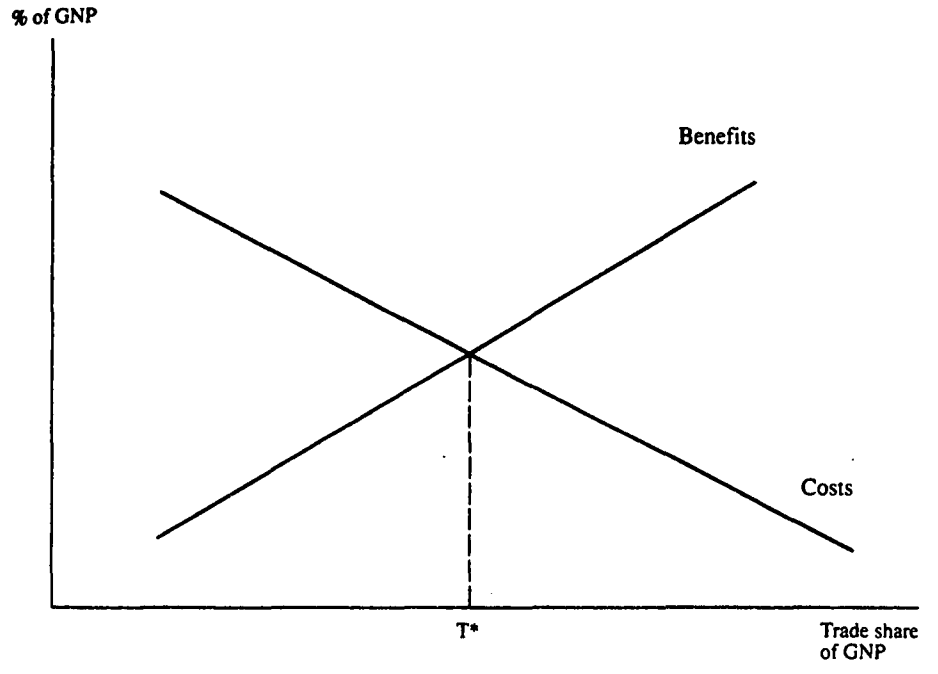
[9] Note that this is simply the logical extreme opposed to that of no money (i.e., barter in final goods) or, what amounts to the same thing, a separate currency for individual economic agents.

Figure A[1]



[1] **Source:** P. Krugman (1990), p. 53.

moneyness benefits/unit trade share in GNP. The net effect is to reduce the slope of the benefits curve with respect to trade share - in Figure A. But we may assume that the curve retains an upward slope.

The cost of a common currency, in terms of delay in relative price (P_T/P_{NT}) adjustment and hence, cyclical disequilibrium, given any assumed degree of P (esp P_{NT}) inflexibility,[10] will decline with the rise of the share of trade in GNP.

In other words, the need for the assistance of a flexible ER_n, to "lubricate" the change of P_T/P_{NT}, is less when the share of trade is greater and hence, the required $\Delta P_T/P_{NT}$ is smaller for a given shock to the balance of trade[11]. But again, there is an offsetting factor (overlooked by Krugman). The required change in P_T/P_{NT} is smaller for a larger trade share of GNP - but this smaller percent Δ must be achieved over a larger part of our GNP. This adds to the size of the distortion created by any given degree of P_{NT} inflexibility.

The crossing point of the curves define the level of trade integration at which a "fixed" rate (as we shall see, this means, in practice, a common currency) becomes preferable.[12]

In this very broad analysis, the variable of factor mobility can be seen as a partial substitute for price flexibility and vice versa. Further the 'costs' of the fixed ER can be interpreted to

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[10] i.e., if prices were perfectly flexible, this cost curve will not rise with the trade share in GNP. P_T/P_{NT} will move either a small distance (if trade share is large) or a large distance (if trade share is small) with equal ease, without the assistance of a change in ER_n. Hence no cyclical costs will arise in this "end case" of perfectly flexible prices.

[11] This applies to a given absolute shock (e.g., a fall in export demand) or to a given shock in terms of percentage of GNP. It may not apply to a given shock relative to the size of exports or imports.

[12] Apart from the offsetting factors discussed in the text, there is the probability that a small open economy will also tend to be more specialized in exports than a big economy. Because of this, a negative demand shock (in trade) is more likely to be concentrated on its few export products, and thus constitute a larger proportion of its exports or GNP. Hence, the smaller country would have larger shocks, which would tend to offset its smaller needed change in relative price per unit of shock. This consideration suggests a smaller difference than is commonly assumed between the net benefits of a flexible ER for a small versus a large economy.

include either those of a permitted recession or those of the greatly increased interest cost of the reserves and credit needed to cover the extended payments gap when recession is ruled out.

Fixed versus Flexible Rates - More Closely Considered[13]

The most important practical costs of a fixed ER_n system (equivalent to the benefit of a flexible system), arise indeed from price inflexibilities: specifically, the negative inertia of W and P_{NT}.[14] This implies either a recessionary tendency when a rise in ER_r is necessary for external equilibrium (i.e., a rise in P_T/P_{NT}) or a rise in the interest cost of the possibly much greater capital import or reserve use required, due to the inflexibility of P_{NT}, to avoid such a recession. The former cost (i.e., recession) assumes that policy allows (or deliberately uses) the cyclical Y effects of a fixed ER_n system to restore (a pseudo) equilibrium ER_r and this indeed is the conventional usage under a fixed ER. A flexible ER policy rules this out.[15] The question then boils down to what (given the degree of relative P rigidity) is the optimal combination of Y^d restriction versus the use of reserves or foreign credit.[16]

It takes only a brief consideration to see that these problems do not arise in both the case of a fall and a rise in equilibrium ER_r (e.g., due to a trade shock), but only in the latter. P_T is held

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[13] For the sake of brevity, the comparative effects (on inflation and growth) of a fixed versus a flexible rate system - in response to equivalent shocks, is set out in Appendix 1.

[14] Wages and the price of non-tradables.

[15] Table A provides a broad comparison of the performance of 'fixers' versus 'floaters' among the OECD member countries. The results show the somewhat surprising result that 'floaters' achieved almost the same measure of disinflation as 'fixers,' but with less sacrifice of growth and distinctly less increase in unemployment. See also related evidence provided in R. Dornbusch (1989), (included as Table 4 at the end of this paper). It is not out of the question logically, that for some countries, membership in the fixed rate grouping stiffened policy resistance to π. But the data support the view that, on average, floaters achieved similar disinflation with distinctly less recession.

[16] The bias towards too much use of Y^d restriction and too little of reserves or foreign credit expansion is illustrated by Israel's policy choices after the balance of payments deficit expanding shocks of 1973 (especially until about 1977).

rigid by the fixed ER_n (or as rigid, that is, as P_T abroad). Hence, if P_T/P_{NT} has to rise; P_{NT} must fall. Negative inertia in W_n and in P_{NT} makes this difficult; with resulting recessionary consequences as net exports decline. If P_T/P_{NT} has to fall, on the other hand; P_{NT} must rise. The demand pressure for this to happen will come from both the direct rise of net exports (NX) and the related "specie flow." P_{NT} (and W_n) suffer very little from positive inertia; (and if they did, this would cause excess demand rather than recession.)

The system operates in analogous fashion for ongoing π or one-time P shocks. In either case, wage-price spirals (i.e. π escalation) can be avoided by deletion of P shocks from W-P linkage).[17]

Table A: Economic Performance in a Period of Disinflation: Floaters vs. Fixers

	Y Growth Rate (%)			Av π(%)			Av U (%)		
	71-75	80-84	85-89	71-75	85-89	$\Delta\pi$	71-75	85-89	ΔU
Floaters	2.9	2.0	3.5	9.1	3.6	-5.5	3.2	5.0	+1.8
Fixers	3.2	1.3	2.7	8.8	2.7	-6.1	2.9	8.4	+5.5

Source: **OECD data:** Predominant floaters include: US, Japan, Canada, Switzerland and UK. Predominant fixers include: Germany, France, Italy, Holland, Belgium and Austria.

[17] See footnote 19.

Why Inertia is Virtually Inevitable

We have seen that the main difference in outcome between a fixed and a flexible rate depends upon the existence of negative inflation inertia ("inflexiblity", "stickiness", etc. to cite some frequently used alternative expressions).

A basic question then, for purposes of a long run choice, is whether such a tendency to negative inertia is an inherently recurrent phenomenon, (i.e., because of empirical, not logical necessity). At first sight, such a result seems to contradict the notion of a market economy in which inflationary expectations have been thoroughly squeezed out. But on careful consideration this appears to be a mistake. The resistance to a fall in W_n or P is the product of both objective (e.g., contractual) and subjective (expectational) factors. But even insofar as the latter are concerned, it does not depend upon the level of expected inflation (π^*); whether this be positive or zero; it simply depends upon the existence of π^* -i.e., the fact that, inherently, people entertain some level of π^*, which they do not change instantly, even if the most "credible" government tells them that it intends to reduce inflation. The reasons for this resistance are manifold - some conceivably short term in nature; stimulated by long past experience of relatively high and variable inflation. These tend to disappear with low stable inflation. This includes (i.e. induces) formal wage-price linkages. But if we strip these elements away there remains others which look fairly invulnerable, such as discrete wage contracts - which generate symmetrical inertia; the insider-outsider phenomenon, arising only in part from the existence of labor unions. This is a real wage distortion but also produces negative inflation inertia. Even if we imagine a shift to a competitive unionless labor market, the informational imperfections concerning the real versus nominal (i.e., relative versus absolute) character of a given change (e.g. decline) in demand for sectoral goods or labor, will bias the seller against immediate price reductions as a policy of "safety first."

Finally, and most fundamentally there is the fact that, just when a new reduction of P_{NT} and W_n (i.e., a new disinflation) are needed (and announced), the credibility of the authorities

must be imperfect because of this very need.[18]

Provisional implications of the above arguments: There is then a forceful economic case ruling out the possibility, even in the long run, of equal negative and positive W and P flexibility, and pointing toward the use of a combination of flexible ER and certain elements of incomes policy when faced with the need for a new disinflation or a substantial real devaluation. In the latter case, the incomes policy element (i.e., deletion of the P shock from wage linkage) would prevent the one-time P shock (i.e., the rise in CPI due to + ΔP_T) from leading to a rise in the equilibrium rate of inflation (or to a recession, if the equilibrium inflation rise were not given monetary accommodation).[19]

The Anchor Issue

Let us now look at this problem from a slightly different standpoint. A common argument for the targeting of a fixed rate, rather than the use of monetary targeting under a flexible rate, is that the former provides a more efficient "anchor" to the nominal price (P) level (or to inflation during a deliberate disinflation). This is mainly based upon the belief that unpredictable fluctuations in the demand for money (i.e., the velocity (V) of any targeted monetary aggregate), perhaps due to financial innovations, sharply undermines the efficiency of monetary relatively to ER_n targeting.

This interesting question observes a direct answer in its own terms, rather than the

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[18] In other words, despite frequent assumptions to the contrary in the recent literature, the authorities would always lack perfect credibility precisely when they need it to begin a new episode of disinflation. This would result from the very fact that, despite earlier protestations, they had (for whatever reasons, including simple errors) allowed inflation to rise again sufficiently to require a new round of disinflation. It follows that expected π (π^*) would always change with a lag - more or less in the manner defined by "asymptotic rational expectations" (Stein, J.; 1982). Thus, whenever such a need arose again in the future, a fixed ER_n must still suffer from the tendency to generate recession via balance of payments disequilibrium.

[19] See Ablin (1988) and Dornbusch (1986) for an analysis of this important point. There "should" be some threshold for the use of incomes policy, but it is difficult to identify it when we consider the very high cost of orthodox disinflation even from low π levels.

arbitrary assumptions which seem to dominate the policy debate.

Qualitatively, the following possibilities exist:

(a) Errors in money growth, due to unexpected changes in M^d (or V) will be reflected in pressures on interest rates (both nominal and real). If M targeting (and a floating ER) is being used, this should signal the authority to cut M^S (i.e., the M target).

(b) If a fixed ER is being used, the same change in M^d will produce a similar negative pressure on domestic interest rates, and, in this case, a rising capital outflow (fall in reserves). This, in turn, will signal the same cut in M^S.

It is hard to see how the situation then is significantly bettered by the use of the fixed ER target. Possibly the advocates of the ER_n target are thinking of the alternative of a strictly "Monetarist" policy that sticks rigidly to a fixed M_n target and ignores interest rate or other signs of a change in V. But this is not a persuasive argument. Monetary policy makers need be no more stupid under a flexible ER system than under fixed ER targeting.

(c) The possible sources of error however include not only changes in M^d (V) but also unexpected changes in equilibrium ER - for a host of possible reasons (e.g., changes in terms of trade, in demand for X or M products, cyclical changes abroad, speculative surges, etc.).

In all such cases, a fixed ER target (failure to allow the ER to adjust to the new exchange market pressure) must produce monetary as well as real instabilities (e.g., a fall in net exports will reduce foreign currency reserves and hence M^S). To keep the ER_n fixed and avoid either falls or rises in our M^S, the authorities would have to offset this effect. In general, this will only neutralize short term monetary disturbances, but will not correct the underlying problem (e.g., speculative outflows or a rise in the trade deficit at Y_p).

Fundamentally, going over to a fixed ER_n target does not allow us to escape from the monetary problem of velocity (M^d) instability. All such instances of instability in V will be reflected in the equilibrium ER, and in local interest rates and will require the same correction in M^S policy as in the floating ER case. But, as noted, the fixed ER_n will encounter a variety of additional sources of instability in equilibrium ER, and the refusal to allow ER_n to adjust, for the sake of its nominal anchor function, will bring upon us other and more costly problems (i.e., recession, extended trade balance disequilibrium).

Related to (partially identical with) the belief in the superior "anchoring" function of a fixed ER system, there is a generalized fear that flexible or floating rates bear a significantly higher risk of escalating inflation. To avoid excessive repetition in the text we include a concise summary in Appendix 1 comparing some of the implications of the two systems in this respect (in reaction to cyclical or trade shocks).

Benefits and Costs of a Fixed Rate - Provisional Summary:

1. We first noted the "moneyness" superiority of a fixed rate: This includes the avoidance of costs associated with minimizing the risks of fluctuations in ER. These may be relatively small in the case of short-term risks (which can be reduced by hedging operations) but not necessarily so for long period risks which may affect, for example, direct foreign investment.
2. We have noted in some detail the inherent tendency of fixed rates to collide with price inflexibilities at high macro-economic cost. But it should be noted that the size of this cost, which is also that of the loss of national control over monetary policy ($\dot{M}_n$), is a negative function of the degree to which there is a macroeconomic policy making center for the

group of fixed currencies.[20]

3. There is a class of benefits which lie between the economic and the political. This is the benefit achieved by a weak government which, by appearing to "tie its hands," finds it easier to avoid the inflationary course urged by various pressure groups.

4. Finally, there is a class of essentially political benefits which may be linked to membership in a fixed rate community (such as the EC). Such a community may provide, in a "package deal" with a fixed rate, important political and security benefits to its members.

Compromises on Fixed Rates - The "Band" System

ER bands have been examined in every technical way in the literature which has sprung up but their main purpose and their effect, or lack of it, have received less attention.[21]

Yet ER bands were introduced in order make a "fixed ER" more feasible. That is, they were thought to provide some protection against the one-way option speculative crises which dealt so hardly with the pure fixed rate.[22] Thus the band system, with a more or less "dirty float" within, became the ruling system of the EMS (European Monetary System) after 1979.[23]

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[20] A policy center does not eliminate cyclical costs but reduces them by allowing collective counter-cyclical policy. Such policy is greatly inhibited for each country in a fixed ER group, by the fear of undermining the ER of their currency. This imparts a recessionary bias to the fixed ER group as a whole. The most dramatic illustration of this important consideration is provided by the EC. Most of its history involved a partial loss of monetary or ER freedom by its members - without a central authority (Bank, etc.) to avoid overall recessionary bias. A de-facto reserve currency member of such a group (e.g. Germany in the EMC) has inherently a national or inward looking orientation in its monetary policy.

[21] Lars Svensson (1992) calls this the distinction between "positive" and "normative" analyses.

[22] Note that in fact even the fixed system of Bretton Woods incorporated a narrow band (1%) around the central pegged rates. The ERM (Exchange Rate Mechanism) bands of the EMS have usually been 2.25%.

[23] It is an interesting instance of the "polarity" nature of fixed and floating ERs that the band system might have been with equal logic classified here as a variety of the floating ER. Bands

The idea was that allowing the rate to move a little would be helpful in this respect. In a band, to a small degree, a two way option prevails - as opposed to the notorious one way option of the fixed rate. The risk for speculation is also increased slightly by the fact that, if speculation (capital movement) increases the deviation of the ER from the central rate, the authorities may push for a return to that rate and, in fact, the present literature (e.g., Svensson, 1991) includes tests showing such a 'mean reversion' tendency.

The importance of the band system has however been generally exaggerated. Unless the band is very large, a shift in fundamentals may easily transcend the borders of the band and thus provide a motive for one-way option speculation. "Fundamentals" include serious cases of excess inflation. In practice, devaluation crises tend to be dominated by the existence of excess inflation (although other shocks may serve as well). "Credibility" therefore, while technically a critical variable, is in practice largely a function of the consistency of the fundamentals (especially relative inflation) with the existing band. The frequency of speculative crises and realignments should be somewhat less than in the pure fixed ER system (ceteris paribus) due to the floating adjustments within the band to small movements of fundamentals. Yet even this potential effect is weakened to the extent that the policy of intramarginal intervention keeps the ER close to the center of the band. Svensson (1992) shows that, given this practice, the band system converges toward a "managed float with a target rate." This amounts to much the same as an adjustable pegged ER system (cf. Krugman, 1990). The result is to increase the likelihood of one-way option speculation toward that prevailing under a pegged rate.

If, in a country with moderate excess inflation (such as Israel), one introduces a "fixed" band, devaluations (i.e., movements of the band) will be needed periodically. If one introduces a trend to the band (as we have recently), then one may expect depreciation all along, but fewer

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might logically have been introduced to guard a floating rate against the danger of destabilizing speculation. But in practice, the narrowness of the bands and the pattern of intervention imply a bias toward the fixed rate pole.

one-way speculative crises and hence, fewer readjustments of the preplanned band path. In effect, one has adopted a flexible rate system with respect to one of the main sources of a shift in fundamentals; (i.e., relative inflation). Nevertheless, the fixed rate problem of non-adjustment to all other changes in fundamentals including changes in external cyclical policy and interest rates, remains.

III. Flexible ER_n Systems and the Problem of Destabilizing Speculation

The costs of a flexible ER obviously are the mirror image of the benefits of a fixed ER; namely the risks and moneyness costs created by ER fluctuation.[24] Again the key question is to weigh these costs against those likely to result from the alternative fluctuations (or lack of them) which are gradually forced upon (sticky) prices and wages (as described above) in the case of a fixed ER.

Since the cost of fluctuation in ER is bound to be increased by destabilizing speculation, the main question which has exercised political circles and economists as well, regarding floating rates, is that of the probable size of such flows. The costs of the ER fluctuations caused by this factor add to the loss of moneyness attendant upon any exchange rate fluctuation: there is also, if these fluctuations are long lasting, the waste of unneeded resource reallocations. The proper questions are those of the probable balance between stabilizing and destabilizing speculation, the potential for dampening the latter phenomena and the cost of the resulting mix relative to that of various degrees of fixity in rates.

There are two broad types of destabilizing speculative flows:

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[24] We might refer here to the formalization of our discussion of the differences in "function" between a fixed and a flexible rate presented in the literature, including such recent textbooks as *International Economics, Theory and Policy* by P. Krugman and M. Obstfeld (1988).

These differences refer to the fact that, in pure form, a flexible rate avoids any automatic money supply response to a balance of payments shock, and thus frees monetary policy. A fixed rate "automatically" supplies (i.e., by the authority's intervention) the amount of money required to offset the effect of a balance of payments shock on the exchange rate (ER_n).

(a) A conventional adjustable peg, with long intervals between adjustments suffers from the phenomenon of massive one-way speculative shifts when an early ER adjustment appears likely or inevitable. Under conditions of unrestricted and rising capital mobility, these flows can easily become irresistible. The monetary authority "runs out" of foreign currency reserves or credits; suffers monetary disruptions, etc.

(b) A free float is susceptible to the phenomenon of destabilizing speculative flows in the classic sense, that is flows which are a positive function of the change in ER caused by previous flows in the same direction.

A "band" system (as described earlier), with a crawling trend of the central rate (especially in the case of excess inflation) is likely to dampen somewhat the one-way speculative option of the adjustable peg and also the potential for classic destabilizing speculative flows of a free float. It is far from immune to these problems however, and also suffers, like the adjustable peg, from the authorities potential for erroneous ER trend or level settings relative to shifting fundamentals.[25]

Asset Markets, a Free Float and Speculation

We shall begin to tackle this complex issue by pointing out the suggestions and difficulties which are thrown up by the relevant data and the literature.[26] To anticipate somewhat, examination of these suggests that asset markets in general (although we only examine equity shares and foreign currency markets here), exhibit wave-like price fluctuations whose "core" is correlated with fundamentals; but which often include a supplementary "layer" (of extremely variable

[25] It should be recalled that the band system approximates an adjustable peg the more that intramarginal intervention tends to fix the rate in the center of the band.

[26] See especially Dornbusch (1990), Jeffrey Frankel and Meese (1987), Summers (1986) and Tobin (1982), Shiller (1981) and Delong and Barsky (1990). The issues of optimal speculation and "reserves" are in fact related. [On the latter, see A. Ben-Bassat and D. Gottlieb (1990).]

weight) produced by net destabilizing speculation (i.e., flows motivated by the extrapolation of recent price changes, or of recent changes in the fundamentals themselves, such as dividends), rather than by "regressive" expectations in regard to these changes). It goes without saying that informational errors will also explain deviations of asset prices from fundamentals; but, in principle, these are unlikely to form wave-like deviations.

The surprise in this examination is how difficult it is to weigh the importance of this potential source of asset price fluctuation. In general, the tendency in the recent literature (as among fixed rate advocates in the earlier related debate)[27] is to jump too easily to the conclusion that destabilizing speculation is indeed a massive and quite harmful fact, (e.g., that it can easily provide a cumulative deviation of, say, the ER of the $, or the price of stocks, from the levels justified by fundamentals; not only over a quarter or a year, but over five years or more.[28]

The Case of Stock Markets

We shall begin by looking at some relatively simple facts: turning then to the tests devised in the literature. If we consider equities (stocks) for example; the criterion of "fundamentals" valuation is somewhat simpler than for currencies. We may regard large deviations of earnings/price (e/p) or of dividend/price ratios from the equilibrium interest rates prevailing in an economy as a probable sign of destabilizing speculation. Even if "normal" e/p levels exceed the "r" on relatively riskless assets - such as bank deposits or long-term

[27] The debate over fixed versus flexible exchange rates by Friedman, Machlup and others.

[28] The main recent episodes suggesting such a span were the strong upswing of the dollar from 1981 to 1985 and the long bull market upswing of US stock prices from 1981 to 1987. Dornbusch (see below) is somewhat guilty of this "too quick" assessment but he very sensibly attributes the propensity of asset markets to destabilizing speculation, to their nearly perfect price flexibility, in contrast to considerable price and wage inertia in product markets.

government bonds - sharp fluctuation in the gap may well be a sign of speculative demand.[29]

We should not proceed further without clarifying some basic, yet relatively neglected facts about financial yields, interest rates, and e/p series, such as those seen in Table 1. All of these are "undeflated" or "nominal", and are affected by the market's adaptation to changes in expected inflation. This sort of adaptation, for example, accounts for most of the general rise in 1980-81. The differences however between the several nominal series reflect other variables (including destabilizing speculation) in the same way as would the differences between the same series deflated by, say the CPI. A further relatively neglected point is that the deflated or "real" series (represented in Table 1 by a deflated discount rate series) show unexplained variable (and lengthy) divergences from inflation and these might (aside from, say, errors in inflationary expectations) themselves reflect variations in destabilizing speculation-working through those yields (especially e/p) which provide the opportunity (or "vehicles") for such speculation.

Thus, for example, if e/p were pushed down (i.e., stock prices up) by heavy destabilizing speculation, this would tend to lift, if not to the same extent, all the asset yields (even discount rates); in other words to lift the equilibrium rate of interest (or range of such rates) in the economy. The effect on other yields should tend however to be a dampened reflection of the effect upon the assets subject to direct speculation.

It appears then, that despite this rather hidden susceptibility of "non-speculative" rates to the indirect effects of speculation, we may still argue that larger divergences of such yields as e/p from the "non-speculative" yields are likely signs of destabilizing speculation.

We may then review the patterns suggested by Table 1. This Table informs us that, while correlated with the yields movement of bonds and new mortgages, e/p fluctuated by about twice the fluctuations in these yields. By contrast, during the steep fall of the stock market from 1970 to 1980, the rise of e/p (95%) was nearly identical to that of the discount rate (97%). (Obviously

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[29] There may be some other sources of relative deviation (especially a tendency for e to rise and fall more volatily - as a residual factor income - with business cycles). See further below.

the discount rate is one of the yields not subject to direct destabilizing speculation.) The subsequent bull market of the 1980s (from 1980 until 1987) saw a fall of e/p of 57% which just equals the fall of the discount rate during the same years. The recovery of e/p during the fall (or crash) of the bull market from 1987 to 1988 was more divergent, but still correlated; +45% for e/p and +19% for the discount rate.

The lower volatility of bond and mortgage rates over these stock market wave movements suggests that the latter are basically correlated with the equilibrium interest rates of the economy, but show a significant excess fluctuation, which may well reflect destabilizing speculation. The surprisingly close correlation of the e/p fluctuations with the discount rate, however throws some doubt on this conclusion (although the cyclical sample observed is small and may be exceptional).

If we check whether shorter period fluctuations show greater relative volatility of e/p we quickly find that this is in fact the case.[30]

The tentative conclusion is the surprising one that the US stock market, at least over most of the long waves of the 1970s and 1980s (the latter of which is regarded as the greatest "bull market" of US economic history since that of the 1920s); did not exhibit price movements greatly out of line with changes in US interest rates. Indeed, one does not observe a deviation from this pattern even in the last year of the 1980 U.S. stock market boom. (See Table I.) The discount rate fell 9.5% from 1986 to 1987 and the e/p 10%. Putting it somewhat differently, the broad interest rate swings over several years were nearly as dramatic, and possibly as difficult to fully explain as those of the stock market. The discount rate movements give the impression that destabilizing speculation was in fact largely confined (at least in the 1980s episode) to the

[30] E.g., in the seven quarters from 1989-I to 1990-III, the mean quarterly changes of the rates discussed (relative to their mean levels) were, e/p = 9.3%, Discount i = 3.0%, Bond yields = 3%, Mortgages = 0.

short term (e.g., quarter to quarter changes).[31] The deviation of e/p from the longer term yields, however, gives room for a major contribution by destabilizing speculation. It remains uncertain how much of the results was due to the "feedback" of speculative effects on general interest rate levels. But most to the point, the "too close" correlation of e/p with interest rates seems to contradict the implications of an important strand of the relevant literature, which we shall reserve to an appendix.[32]

Exchange Markets

We turn now to the floating exchange rate; which constitutes the center of attention of the literature cited above. One of the most interesting papers is that of Dornbusch (1990). He assembles data (see Tables 2A and 2B), which summarizes the dramatic failure of three tests of the market's ability to forecast actual ER movements of the dollar during the 1980s. These show that both interest differentials between currencies; and the forward premia or discount of currencies; hardly relate at all to (far from well forecasting) the actual movements of the ER.[33] Furthermore, this is supplemented by a third failure; that of direct surveys on expected ER change.

Although Dornbusch strongly suggests that these facts imply that actual ER movements have been dominated by destabilizing speculation, we should be cautious in reaching this conclusion. These findings imply first of all that the markets do not forecast ER changes well (i.e., that they are far from rational in the perfect foresight sense).

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[31] Other sources of data (see Figure 2), for example, indicate that stock prices tracked dividend levels over all of the 1920s "bull market," except for the last five quarters before the November 1929 Crash.

[32] See Appendix 2 for a review of this "Efficient Market" literature.

[33] The literature on this problem goes back at least through the 1980s and suggests that a relatively "reasonable" relationship between interest differentials and dollar ER movements during the floating rate period up to 1980 (about 7 years) more or less collapsed after that year (the period dominated by the dollar's rise).

Consider the tests one by one (see Table 2A). The interest gaps tend to be far below (actually, the reverse of) the actual depreciation in the period of the dollar's big rise from 1981 to 1985. In principle, investors were "missing a bet" and should (in 1981-1985) have shifted far more funds from, say DMs to dollars (to reduce $\$i$ and raise DMi). True; such a shift would have pushed the rate of depreciation (i.e., of the DM) still higher. Note that (as one or two authors have also pointed out), the market "should" be able to include destabilizing speculation in forming its expectations of ER, and to adjust the interest parity accordingly.

Yet there is a problem in this assumption. If (as is likely) the quantity of the destabilizing speculative flow is initially a function of the quantity of non-speculative current and capital flows and then of the consequent rate of rise of the dollar itself; then, with such an additional dollar rise, the quantity of speculative flows would also increase. It is not at all excluded that, under such conditions, the market could not reach an equilibrium (i.e., interest rate parity = depreciation).

We turn to the second "failed" test; the forward ER premia (see Table 2B). Suppose the participants in the forward market also "know" that the dollar is going up largely because of destabilizing speculation. They should then refuse to sell dollars forward except at a premium which includes this expected rise (and the same applies to the price buyers are willing to pay). If they do not do so (as we see in Table 2B), then this "knowledge" assumption is apparently invalid.

A possible explanation (suggested by several authors, although not necessarily for this reason) would be imperfect information, or, more precisely, an inability of market participants to quantify the probable outcome of changes in the fundamentals and in net destabilizing speculation - even if they are qualitatively aware of both. One result (and strong evidence for this hypothesis) wold be a tendency to <u>underpredict</u> actual changes; that is, to "compromise" on an expectation of relatively little change in ER. This is in fact strongly exhibited by both Tables 2A and 2B. The interest gaps, the forward discounts and the survey results are all much smaller

than the actual changes in ER for corresponding periods. This suggests that behavior (as opposed to theory) in the exchange market was indeed dominated by destabilizing speculation, in this period at least.

Another question we may pose in regard to the above tests, is whether changes in the test measures, although much dampened, at least go in the same direction as those in depreciation even in this exceptionally speculative episode. In fact (Table 2A), the interest differentials do perform in this way (e.g., in 1981-1984, the *i*DM - *i*\$ = -5% and the DM/\$ rises; in 1985-1987, the *i* gap fall to -2.5%, and the DM/\$ falls.[34] For the £ we find a consistent performance (i.e., in 1981-1984, the £*i* - \$*i* = 0 and the £/\$ rises; in 1985-87 the i gap moves to 3-4% in favor of the £, and the £/\$ falls).

Neither the forward discount or the survey tests (Table 2B) provide sufficient data to check this question. The forward discount was about 0 (yen-\$) during the 1981-1985 phase of a falling \$/yen (i.e., rising yen/\$), while the survey data actually show people saying that they expect a 3.5%/year rise in the \$/yen over the entire period.[35]

We come next to an important strand of evidence provided by Jeffrey Frenkel.[36] This (summarized below in Table 3) consists of a regression analysis of deviations of survey expected ER from a calculated "PPP" (purchasing power parity) over different time horizons. These show that expectations of the change in ER over one month or three months following an ER change (or "shock") are <u>not</u> regressive (stabilizing); but they are so over a one year horizon. In other words, the coefficients relating the expected deviation of ER from PPP to the initial deviation

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[34] This is a weak form of the right direction. The U.S.*i* is always > DM*i*, but when this gap diminishes, the DM/\$ trend reverses. (See below Diagram 1, for further support of this relationship.)

[35] This schizophrenic result (in which people bet de facto in the opposite, extrapolative, direction from that which they say they expect the market to go) again suggests the divergence of behavior from theoretical judgement in such extreme episodes.

[36] Frenkel and Meese (1987).

is > unity for shorter horizons and < unity for one year or longer horizons. (Specifically, if there were a 10% rise in ER "today," people would expect a 1.75% erosion of this rise over one year.) It is also shown that this expectation is broadly in line with the actual average speeds of adjustment of ER to PPP. We shall discuss below the important implication of this result for a tax policy designed to dampen destabilizing speculation.

The Dollar Episode: Having briefly gone over tests provided by the recent literature, and seen that they provide a suggestion of a mixture between fundamentals and stabilizing speculation on the one side and destabilizing speculation on the other, it may be useful to describe how ER movements "ought" to have looked in an episode such as that of the dollar's 1980s rise and fall, if based on fundamentals, in comparison to how they actually looked. By such a comparison, we may throw some light on the contribution of destabilizing speculation.

Excluding the possibility of destabilizing speculation, what should we expect to follow from the "fundamentals" shock of the massive Reagan tax cut?

(1) A jump in the U.S. government deficit in 1981-82; No offset in private saving.[37]

(2) A rise in U.S. *i*;

(3) A rise in capital flows to the U.S., resulting, despite some dampening of the *i* gap rise, in a rise in the "DM"/$ exchange rate;[38]

(4) If there were no further significant increases in the U.S. government deficit (or drops in national savings), and no significant speculation, then we should have observed a gradual dampening and partial reversal of the rise in the exchange rate, as the U.S. trade and

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[37] We assume the de-facto case: that Ricardian Equivalence failed to appear in practice.

[38] "DM" is used as a shorthand for non-dollar currencies in general. The *i* gap rise only dampens because of imperfect capital mobility. If mobility were perfect the *i* gap falls to zero, but because we assume the U.S. to be a big area, the *i* level would remain higher. In either case the effect on the exchange rate would be the same (i.e., a rise in the DM/$ rate).

current balances adjust (fall) to the initial rise in the dollar.[39]

(5) In this scenario, the DM/$ would only turn sharply downward in response to a new expectation of a reversal of the U.S. government deficit (or national saving rate) change.

(6) Stabilizing speculation in reaction to the above scenario should only have pulled the initial DM/$ rise forward in time (if the fall in U.S. S/Y was anticipated), and somewhat smoothed the rise and later dampening toward the long-run position. It could not, for example, change this dampening into a further upward movement of the ER of the dollar.

Let us now introduce destabilizing speculation:

(1) The initial jump of the DM/$ now ignites a supplementary flow of destabilizing speculation that pushes the ER of the $ (i.e., the DM/$) still higher in a self-confirming sequence for an indefinite period.

(2) The capital gains of the rising DM/$ in this process substitute for the US-DM interest differential and thereby avoid the need for a further rise in the latter (to explain the further rise of the DM/$).

(3) The trade and current balance of the U.S. falls more than in the previous case, due to the bigger ER stimulus. But for some years, the impact this makes, via the current account, to the exchange market equilibrium rate, is more than offset by the destabilizing speculative demand for the dollar. Eventually, however, the weight of the current balance fall plus the inherent loss of energy of any speculative boom as portfolio shifts become more and more extreme, brings the dollar rise to a halt and thus precipitates a crash. This decline occurs even in the absence of any new expectation of a reversal in the U.S. government deficit and of the US-DM *i* gap. The crash character of the decline is produced by the conformism of speculators, i.e., a lightening reversal of sentiment (also

[39] The exchange rate should fall back somewhat in reflection of the higher LR than SR trade elasticities.

an expression of destabilizing speculation).

It is enlightening to compare the above scenario with the actual course of the dollar wave. This is represented in a diagram (see Figure 3) provided by the *Economist* (July 27, 1991).[40] Here we observe the broad consistency of the total phase movements of the ER with those of relative interest yields (real yields), and at the same time, its important divergence for rather long periods - especially 1981-85. In this period (as expected) the interest gap stabilizes, yet the dollar goes on rising relentlessly after its initial jump (with the *i* gap) in 1981-82. In the diagram we see the DM/$ peaking sharply in 1985, and then falling in a near "crash" over the next couple of years. True, the diagram informs us that this steep fall was at least strengthened (and possibly triggered) by a significant reversal of the US-DM interest gap - so matters are somewhat more complex than the simple cateris-paribus scenario. Nonetheless, a sharp ER reversal was clearly "in the cards" even without this (i.e., in view of both the upward deviation of the ER from the *i* gap and the simultaneous trade adjustment from 1982 to 1985).

In short, the analysis of this episode points to the conclusion that the large ER fluctuations of the 1980s (or post-Bretton Woods floating era since 1973) are broadly consistent with movements in "fundamentals," but that they still contain an important layer of "deviation" which appears inexplicable apart from the hypothesis of destabilizing speculation. In the 1980s episode discussed, this factor was apparently capable of distorting the ER movement for several years at a time. Moreover, the actual fluctuations contrast still more sharply with those which should be expected if the underlying movement were dampened by net stabilizing speculation. It is worth recalling in conclusion however that this $ episode was unprecedented and other "deviant" ER fluctuations among floating OECD currencies have seldom approached it in size.

Before going on to discuss possible ways of dampening the destabilizing speculative costs

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[40] From Shearson Lehman Brothers, New York.

of a floating ER system we can make the following comparison between floating and pegged rates in the absence of significant distortions arising from this source.

First let us summarize how price inertia or inflexibility bear on the comparison:

If P_T/P_{NT} (in domestic currency) were perfectly flexible (i.e., the P_T and P_{NT}); then it would adjust immediately to shifts in market conditions. If P_T/P_{NT} must rise in a floating ER_n system we would observe hardly any fluctuation in ER_n (assuming equal inflation everywhere). There would be a rise in P_T and a fall in P_{NT}, but no change in the absolute level of both (i.e., "P"). Hence there would be no "moneyness" costs. If ER_n is unchanged and if P_T increases foreign P_T must also increase.

What about a fixed ER system? Under the extreme assumption of perfect flexibility in P_T/P_{NT}, there would also be no costs in terms of recession or in interest foregone to finance a deficit in a formal system of pegged ER_n. The ER_n would (on our assumption of equal inflation everywhere) stay constant, with internal P_T and P_{NT} doing all the work. P_T and P_{NT} would both move, but the absolute "P" level would stay constant.

Of course, radical P_T/P_{NT} flexibility (in both directions) is highly unrealistic, but tracing out the effects of this assumption helps one to realize that it is inflexibility in this respect which gives the distinction between floating and fixed rates its importance.

Given de-facto price and inflation inertia, there can be little doubt that the relative cost of a fixed ER system is greater, both in the case of a recessionary response to a trade shock (i.e., non compensation of Y^d) and in the case of a compensated response. It should be noted in this regard that, in the absence of recessionary pressure, the period of readjustment to Balance of Payments equilibrium will be longer under the Y^d compensation policy and thus, the interest

cost of reserve and credit use greater (which offsets much of the saving in GNP(Y).[41]

Finally however, we must recall that the above summary, which suggests normally much greater costs for a fixed rate system, is based upon a comparison with a "well-ordered" floating rate (i.e., one which is free of major distortions from such factors as destabilizing speculation). We should therefore proceed to a discussion of the impact of this factor with an open mind.

Possible Dampening of Destabilizing Speculation

It has already been pointed out that the costs of speculative fluctuations in ER are two-fold. First, the general loss of moneyness, which is identical to that created by any fluctuation in ER_n[42]. Secondly, a cost arising from excess resource reallocation as the economy attempts to adjust to the changes in ER_r, induced by the speculative wave, only to find itself reversing these changes as the speculative wave unwinds.

Destabilizing speculation thus enters the scene as an addition to the minimal costs of ER fluctuation under a floating ER system.

Our earlier discussion of the literature in regard to destabilizing speculation (in asset markets generally) suggested that this phenomenon has sometimes been exaggerated, but that it appears to have been a damaging reality from time to time. [43]

What then of possible means of dampening this distortive factor? The most likely candidate appropriate directly to a floating ER system (and possibly of some use in the other less

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[41] If the payments imbalance was due to relative monetary expansion and inflation, and was opposed by a truly fixed ER_n; this loss would be virtually unlimited. In practice, therefore, either the government follows a policy of intermittent devaluation (as in Israel from 1985 to 1991) or reduces the rate of relative monetary expansion and inflation.

[42] There is some informational loss (increased cost) in the "unit of account" function of money even for a "pure" ER_n change. These costs increase if an ER_r change is induced as well.

[43] We shall just note here (but not enter into a discussion of the issue) that the propensity of asset markets to destabilizing speculation (i.e. real estate as well as stocks and foreign exchange) is likely to have intensified business cycles for many years and to have delayed recovery, in particular, from the early 1990s world recession.

perfect forms of ER flexibility); would be the so-called Tobin Tax.[44] Very simply, such a tax, consisting of an ad valorem levy upon any currency conversion, would be based on the rationale of raising the cost of short-term speculation relative to that of long-term (i.e., currency reversals). This in turn is based upon the presumption (later supported by the tests discussed above) that destabilizing ER expectations tend to be short-term (i.e., short period) in character; while longer run expectations tend to be stabilizing (i.e., regressive).[45] By sharply raising the transactions cost relative to the price changes that can possibly be expected over short period conversion and reversals, while only slightly affecting this expected net yield over longer periods (one year, five years, ten years, etc.), the tax would presumably reduce the quantity of destabilizing speculation and, thereby, the chance that such speculation would outweigh the concurrent stabilizing speculation oriented toward a longer period. (A 1% tax would create annual rate costs of 180% in a one week shift, but less than 1% in a conversion of 2 years).

The problems with this proposal are essentially practical - how to levy such a tax on currency conversions under conditions of free exchange markets. It has often been assumed that a single government's tax, without the cooperation of all the rest, would induce a shift of exchange markets to areas in which this tax is not levied.

In the Israel of today sufficient exchange controls may still exist to render such a single government tax on conversions less difficult; but it is hard to accept a technique which would depend upon the maintenance of a restricted system. In principle, a "sales tax" on any currency conversion (e.g., via a private bank or broker, or even between individuals) could be levied in

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[44] Originally proposed by Professor Tobin in a 1978 presidential address to the Eastern Economics Association. (See Tobin, 1978.)

[45] The ability of SR expectations to produce a speculative wave extending over the period of say, a year or more, is explicable by the accumulation of (SR) rises. In other words, total short-run speculative transactions may for a long period of time outweigh the simultaneous longer run speculative transactions - based on stabilizing (regressive) ER expectations. The former consist of purchases of a rising currency pushing it further in the same upward direction. The latter consist of sales of that currency, tending to push it down again.

a perfectly unrestricted exchange market - in the same way that sales tax or VAT are levied on unrestricted commodity or service markets. The participants in the market - especially the "professional" participants are supposed to pay up to the fiscal authorities partly from reasons of conscience; partly from fear of investigation. This should work with respect to the bulk of currency conversions which consist of customer orders to commercial banks or currency brokers. (Presumably orders to a local bank to transfer shekel funds for conversion to some foreign currency in a foreign bank might also be observable by the local authorities.)

I leave the area of practical application for more expert later examination. Although the general logic of the Tobin tax and its "impracticability" is mentioned in recent literature I have seen little or nothing in the way of detailed examination or proof of this objection.

A very recent contribution to this question[46] sees little danger of non-enforcability in a tax of this kind, and also analyzes alternative methods with similar potential effect (e.g., reserve requirements, that is, zero interest deposits required against foreign currency purchases). This latter approach was in fact used against suspected destabilizing speculation in Israel in 1978. W & E provide an excellent examination of these reforms. And the reader should note that they are considering them as defenses against the one-way option speculation of a fixed rate. Against destabilizing speculation under a floating rate, the required tax or deposit rate could be even lower (and hence have few negative side effects).

Some Particulars - the Case of Direct Investment

There appears to be a broad consensus that the foreign trade costs of ER uncertainty (e.g., between the date of order and of payment for exports or imports); although certainly present, are greatly dampened for those (probably the majority of traders) who are adverse to such risks, by means of hedging in forward exchange markets. The cost of this imperfection of

[46] See Charles Wyplosz and Barry Eichenhorn, (1993).

moneyness presumably bears a close relation to the total fees collected for such services.[47]

There is much less of a consensus with regard to capital movements. I refer here not to the complex subject of financial capital flow distortions (i.e., the speculative flows which we have discussed above) but to real investment across currency borders.

To suggest the present uncertainty among economists on this issue we may list just three arguments encountered in recent literature:

ER uncertainty over the time period relevant to "direct investment" (5-10 years or more) is not hedgable in forward markets; and hence inhibits direct investment between different floating currency areas.[48] This inhibition would be less severe, the more fixed the ER system.

There are a variety of developing techniques of indeed hedging LT capital flows of this kind.

Because of the non-hedgability of ER risks of investment (domestic as well as foreign) firms have tended to geographically diversify investment and production among various currency areas. In other words, the existence of such risk in a flexible ER system has promoted and increased direct investment flows. This argument has been used (informally), for example, to help explain the acceleration of direct investment internationally in the years following the breakdown of the Bretton Woods system.[49]

It should be immediately noted, in relation to this third position, that it refers to the use of direct investment (geographical diversification) as a form of hedge against ER uncertainty.

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[47] Note that ER uncertainty involves a risk of unexpected rise or fall of the domestic currency price of exports or imports. A trader may either gain or lose. In the absence of risk aversion, therefore, no cost appears to be imposed.

[48] The risk involved is not only that of the value of the original investment in case of later repatriation to domestic currency; but also the effect which unexpected long lasting ER changes may have on the profitability calculations for the goods to be produced and sold from the foreign investment site. Short-term risks affecting these sales may be hedged; but the long-term profitability of such sales (and therefore of the original investment) would not be hedgeable in this way.

[49] See Richard Cooper (1991).

In principle, however, the diversification thus induced involves some additional costs (e.g. a loss of scale economies) and need not stop at the optimal level. This contrasts with argument one above, which implies a decline of direct investment below its optimal rate.

Taking the Cyclical factor into Consideration

So far in this section, we have considered some aspects of the costs of flexible exchange rates especially on direct investment, and under conditions of destabilizing speculation.

When, however, we take into account the additional risks for direct investment introduced by the tendency of a fixed ER system to worsen cyclical fluctuations in the economy of each member state (because of its severe constraint on counter-cyclical policy), we confront the fact that cyclical risks (which directly produce large swings in the yield of direct investment) are not independent of the ER system chosen.

Moreover, there is the 'normal' inability of countries to hold their pegged ER_n fixed in the middle to long run (cf the EMS in 1992). ER risk for an investor has much more to do with the medium to long term swings in ER_r than with its short term volatility. And medium to long term variability can be as large in a pegged as in a floating currency (although we may grant that the pegged rate does achieve lower short term volatility.)

To sum up; ER risk will be present (somewhat to the prejudice of optimal investment flows) in a system of floating rates. However, cyclical risk, together with direct ER risk, will be lower than in a system of 'fixed' (i.e., pegged) rates. This follows from the scope given to independent counter-cyclical policy by a flexible rate (and also the ability of a flexible rate to speed trade balance readjustments).

Finally, a truly fixed ER system, which amounts virtually to a common currency, necessarily involving a policy making center, reduces the cyclical risk to an intermediate point between the pegged and the floating systems. This follows from the fact (acknowledged by many authors) that a counter cyclical policy focused upon a region of a common currency area (say, the Midwest of the US) might well dampen local cycles more efficiently than a currency area

counter-cyclical policy adapted to the average cyclical phase of all the area's regions.

But a common currency (i.e. a truly fixed ER) would indeed eliminate ER_n fluctuations and, in so doing, a large part of those of the ER_r as well.

IV. Final Implications

Summing up the 'practical' lessons of this discussion, we can profitably recall Krugman's penetrating 1990 paper briefly discussed in our first pages. He concluded by saying that a common currency for Europe (as for the USA) is a good idea because it would be a big help to European political unification, and that this is more important than the loss of "some flexibility in adjustment." He means, of course, the loss of a more efficient pursuit of counter-cyclical policy, as well as relative price adjustment to normal exogenous shocks to payments equilibrium.

It seems likely that the advantages of a common currency (with respect to Europe) would apply to Israel almost as well. We are, after all, almost as integrated with Europe in trade share of GNP as many European countries.[50] As we have seen, the relevant choice is now between a common currency and some form of float, since in the new era of free and extremely efficient capital movements, a fixed ER system of whatever variety is no longer a realistic option.

But if, in practice, Israel is excluded from participation in a European common currency (which, it will be recalled, does not yet actually exist), then some form of flexible rate is the preferable choice.

Put somewhat differently, the fixed rate is now a near impossibility unless the country pursuing such a rate is ready to sacrifice the right to independent counter-cyclical policy. The choice of a fixed rate - without a policy-making center - may be possible, given that sacrifice (e.g., the Netherlands), but the relative cost of that choice, in deeper or longer cycles, would

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[50] Merchandise imports and exports vis a vis Europe ran at about 1/2 our total trade in recent years or at least 13 percent of GNP. Our Services Trade with Europe would add significantly to this share. (The four largest European states have an average European trade share of about 15 percent of GNP.)

be clearly excessive. This points toward some form of a floating rate as the best available choice.

Our present system is hardly a 'fixed' ER system, but it is biased toward pegged features (the rigidity of the pre-announced height and slope of the central rate, the tendency toward intra-band intervention toward the central rate.) Given the multitude of factors which affect the equilibrium rate; both difficult to measure and in constant flux, and given the fact that Israel has suffered from a serious constraint of counter-cyclical policy under this regime and its predecessors, it would be preferable to reorient the system toward greater flexibility.[51]

While proceeding (and we should proceed) to devise a systematic defense against the danger of destabilizing speculative waves, along the lines of the 'Tobin tax',[52] the practical optimum for the present would seem to be a 'managed float' with restrained intervention (i.e., only against very rapid one-way trends in the rate.)

It should go without saying that this policy choice would lose its rationale unless macro-economic and, in particular, monetary policy, is then targeted to the achievement of potential GDP levels and rates of growth, as well as, over the longer term, to a secular trend of low and stable inflation.[53]

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[51] We have also seen that the supposed "anchoring" advantages of a pegged rate are little more than a covert denial of the authorities' will to resist inflation.

[52] This reform is "overdue" for all economies with unrestricted capital mobility, and also in application to other speculative asset markets.

[53] Contrary to superficial assumptions, sometimes arising from absorption in a pegged rate system, more perfect capital mobility does not imply that monetary policy loses its counter-cyclical effect; simply a relative shift from investment-led to net-export led Y_d stimulus.

Table 1
US Bond Yields and Interest Rates versus Stock Earning/Price Ratios (percent)

(% changes)

	1970	1975	1980	Peak	1986	1987	1988	1989	1990	1970-1980	1980-1987	Peak-1987	1986-1987	1987-1988	1987-1990
1. Bond yield[a] (Govt. LT)	6.6	7.0	10.8	12.9 (82)	-	8.6	9.0	-	-	+63%	-20%	-33%	-	+4%	-
2. Stocks e/p[b]	6.5	9.2	12.7	12.7 (80)	6.1	5.5	8.0	7.4	6.5	+95%	-57%	-57%	-10%	+45%	+18%
3. Corporate Bond Yield[b]	9.1	10.6	13.7	16.1 (82)	10.4	10.6	10.8	10.2	10.4	+51%	-23%	-34%	+2%	+2%	-2%
4. New Mortgages	8.5	9.0	12.7	18.1 (82)	10.2	9.3	9.2	10.1	10.1	+49%	-27%	-38%	-8.8%	-0.1%	+9%
5. Discount *i*	6.0	6.3	11.8	13.4	6.3	5.7	6.2	6.9	7.0	+97%	-52%	-57%	-9.5%	+19%	+22%
6. Deflated Disc *i*[c]	0.0	-2.6	-1.5	2.8	4.3	1.9	2.1	2.0	1.5						

[a] Source: Statistical Abstract of US.

[b] Source: Economic Report of the President. e/p is based upon Standard and Poor's 500 share index.

[c] Deflated by CPI.

Table 2A

Interest Differentials versus Realized Depreciation, 1981-1987

	($-£)		($-DM)	
	Int. Diff[a]	Depreciation[b]	Int. Diff[a]	Depreciation[b]
1981	-2.6	25.5	-5.0	14.3
1982	-0.7	17.7	-4.7	5.4
1983	0.5	11.0	-4.1	14.6
1984	-0.9	25.8	-5.4	15.6
1985	3.9	-20.1	-3.1	-21.8
1986	4.1	-1.7	-2.2	-21.1
1987	2.6	-21.2	-3.1	-18.3

[a] Equals £*i* - $*i* or DM*i* - $*i*. Annual averages of three month interest rates.
[b] Equals %Δ£/$ or DM/$ during year.

Source: Dornbusch (1990).

Table 2B
Forward Discount and Survey Results ($/Yen)
(Percent Δ at Annual Rate)[a]

Period	Horizon	Actual	Survey	Forward Discount
10/84 - 02/86	1 month	10.1	-11.9	-3.9
06/81 - 12/85	3 month	-6.4	3.7	-0.1
06/81 - 12/85	12 month	-9.5	3.4	0.4

[a] Figures shown are averages for the changes forecast within the "horizon" time span (during the period noted).

Source: Dornbusch (1990); from Frankel and Froot (1986).

Table 3[1]

REGRESSIVE EXPECTATIONS

Data set	*Dates*	*Coefficient* $\hat{\theta}$	*t*: $\theta = 0$	*DW(2)*	*DF*	R^2
MMS 1 week	10/84–2/86	−0.0283 (0.0080)	−3.53**	2.10	219	0.58
MMS 2 week	1/83–10/84	−0.0299 (0.0079)	−3.78**	2.15	179	0.61
MMS 1 month	10/84–2/86	−0.0782 (0.0134)	−5.84**	1.40	1.51	0.79
MMS 3 month	1/83–10/84	−0.0207 (0.0146)	−1.41	1.55	179	0.18
Economist 3 month	6/81–12/85	0.0223 (0.0126)	1.78*	1.66	184	0.26
Amex 6 month	1/76–8/85	0.0315 (0.0202)	1.56	1.22	45	0.21
Economist	6/81–12/85	0.0600 (0.0159)	3.77**	1.32	184	0.61
Amex 12 month	1/76–8/85	0.1236 (0.0276)	4.48**	0.60	45	0.69
Economist 12 month	6/81–12/85	0.1750 (0.0216)	8.10**	1.25	184	0.88

Independent variable: $\hat{s}(t) - s(t)$
$\hat{s}$ measured by PPP
SUR regressions(1) of Survey expected depreciation:
$E[s(t+1)] - s(t) = a + \theta[\hat{s}(t) - s(t)]$

Note: (1) Amex 6- and 12-month regressions use OLS due to the small number of degrees of freedom.
(2) The DW statistic is the average of the equation by equation OLS Durbin-Watson statistics for each data set.
*Significant at the 10 percent level.
**Significant at the 1 percent level.
R^2 *corresponds to an F test on all nonintercept parameters.*
The results are taken from Frankel and Froot (1986).
Constant terms for each currency were included in the regressions, but not reported above.

[1] **Source:** Frenkel and Meese (1987).

Table 4[1]

Sacrifice ratio of disinflation: 1981–88 [2]

Country	Sacrifice ratio	Country	Sacrifice ratio
Australia	7.65	France*	1.41
Netherlands*	5.03	Italy*	1.02
Germany*	4.17	Switzerland	0.81
Spain	3.70	Norway	0.68
Ireland*	2.41	Japan	0.66
Austria	2.29	Luxemburg*	0.52
Canada	2.18	Portugal	0.44
Greece	2.08	Sweden	0.27
Belgium*	1.98	Finland	0.25
UK	1.54	US	−0.09
New Zealand	1.53	Denmark*	−0.11

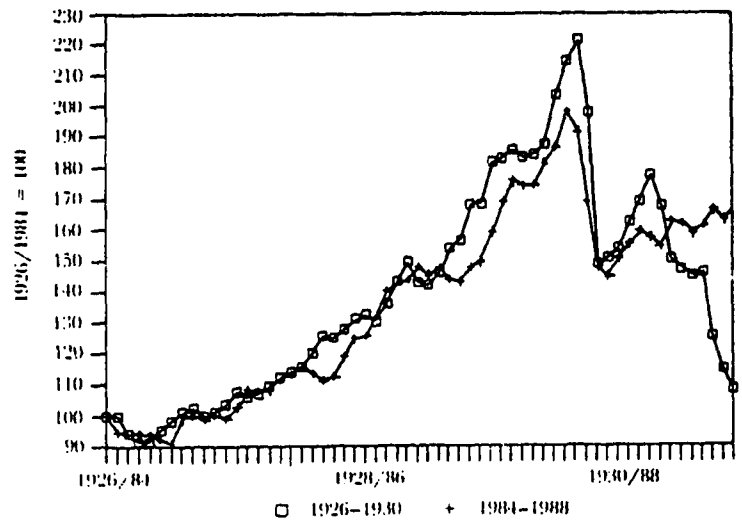
Note: The sacrifice ratio is calculated as the ratio of the cumulative unemployment above the 1981 level divided by the disinflation between 1981 and 1988, using consumer price inflation. *denotes EMS member. All data from OECD *Economic Outlook*.

[1] **Source:** Dornbusch (1989).

[2] The mean sacrifice ratio is higher for EMS members (2.05) than for non-members (1.71).

Figure 1[1]
Common Stock Indices

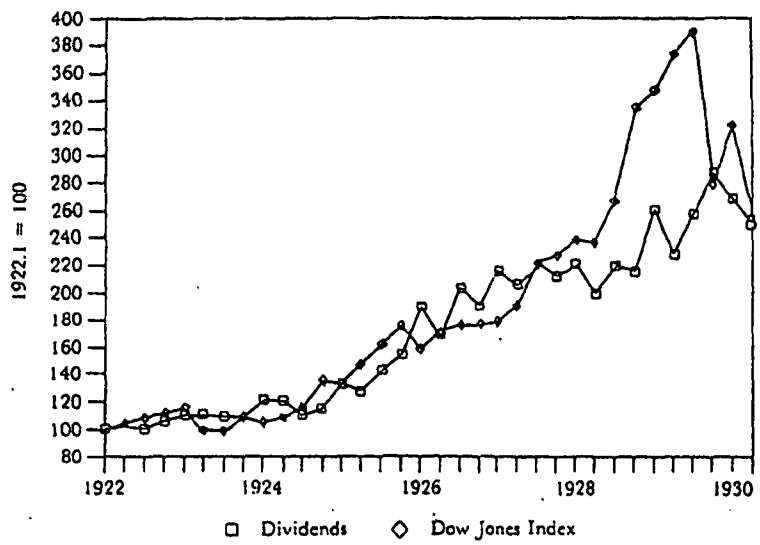
Figure 1
Common Stock Indices



Source: The index for the 1980s is Standard and Poor's 500. The data for the 1920s is found in the Board of Governors of the Federal Reserve System (1943).

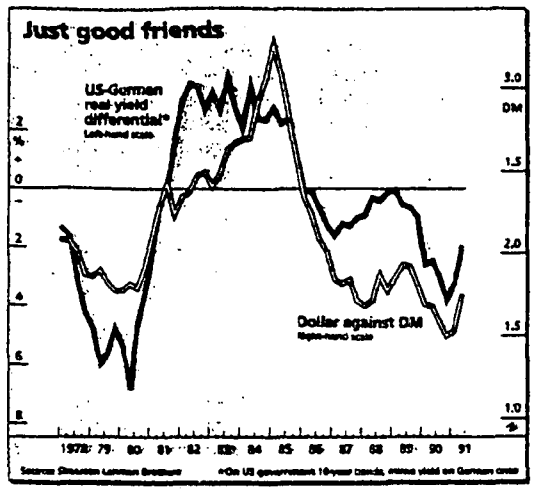
Figure 2
Stock Price and Dividend Indices[1]

Figure 2[1]
Stock Price and Dividend Indices



[1] The Figures 1 and 2 are taken from E.N. White (1990) (where they are entitled Figure 1 and 3 respectively).

Figure 3



Source: *The Economist*, July 27th, 1991.

Appendix 1: Are Floating Rates More Inflationary-or Does the Problem Arise from Some Other Source?

This appendix is included to allow a concise summary of the inherent inflation and growth effects of fixed versus floating exchange rates. We mean the necessary effects of the difference between the two exchange rate regimes - as opposed to other factors which may (but need not) be added to them (e.g., a lack of monetary "nerve" by the authorities, or an inability to stand up to the cost inflationary pressure of special interest groups).

In so doing we confront the widespread belief (probably the most influential argument favoring a fixed or at least pegged rate system) that a floating rate must be "more inflationary".

We proceed therefore, to examine the implications of the two systems in reaction to similar shocks.

1. A Floating Rate

An External Recession: Due to inflation inertia (especially negative P_{NT} rigidity), a floating rate will exhibit a temporary (i.e., cyclical) rise when external recession, via a fall in export demand, requires a devaluation. This will neutralize the recessionary demand effect, as well as the current balance effect of this shock. There is, as in any real devaluation, a temporary decline in real wages and incomes.

In short, no significant recessionary effect; a temporary price level rise (due to the rise in P_T). Potential inflation escalation tendencies can be neutralized by deletion of this price rise (or even a part of it corresponding to the share of imports in total uses) from de-facto wage indexation.

External Cyclical Recovery: A floating rate will allow a reversal of the effects observed above; (that is, a fall back in the equilibrium ER due to the stimulus given to the export demand. This also reverses the temporary price rise and the decline in real wages and incomes.

Taking the two cyclical phases together then, we find that the effect on growth is to greatly dampen if not to eliminate the cycle; and the effect over the cycle on inflation is

essentially zero.

2. A Fixed Exchange Rate

External Recession: The fixed (pegged) rate will not respond to the negative shock to net exports and GDP. The result will be a temporary GDP recession effect, but, admittedly, no rise in P.

External Recovery: The reversal of the external recession effect, (recovery of net exports and of Y^d will restore the economy to its pre-shock position. Taking the two phases of the external cycle together, we find under a fixed rate, no change in P, but an "imported" business cycle - with recession in phase one.[1]

We need not go over the differential effects of other trade shocks (especially a fall or rise in demand for our exports arising from non-cyclical factors). They imitate those of the external recession cycle described above. We may perhaps briefly note the effects of deliberate disinflation in the domestic economy, this time giving explicit attention to the capital account.

Deliberate Disinflation

Floating Rate: Because of inflation inertia conventional disinflation via monetary deceleration tends to cut real balances of "M" and to raise interest rates. If capital mobility is low this produces a recession mainly via higher "r" and a fall in interest sensitive expenditure. If capital mobility is high, it generates capital imports, a fall in the exchange rate and a transitional recession mainly stimulated by falling net exports.

But this fall in net exports does not immediately restore the exchange rate - due to the continuing pressure of high interest rates and capital imports.

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[1] The reader will quickly see that, so far, we have avoided what, in practice, may be troublesome transitional effects from the capital account. These effects (e.g., loss of domestic reserves to the recessionary external region due to differential interest rate effects plus the new import surplus) could quite possibly break up the pegged rate or deepen the domestic recession. In this situation, the floating rate proves more maintainable and allows counter-cyclical policy to avoid or greatly dampen the imported recession.

So far as price or inflation effects are concerned, there is a negative immediate effect (from the fall in P_T) and of course, over a longer period, inflation tends to fall due to the pressure of the transitional recession.

Fixed Rate: Conventional disinflation via monetary deceleration again cuts real balances and raises interest rates. Low capital mobility again leads to a recession due to the fall in "investment". In the case of high capital mobility, the difference in the ER system shows more strongly. In this case, capital inflows rise, but this is not allowed to cut the exchange rate. It therefore tends to restore the growth rate of money (M) and to "cure" the local recession (and prevent the desired disinflation). If we "sterilize" this capital import, we pile up foreign currency reserves, but obtain our recession and eventual disinflation.[2]

Conclusion: In general then there seems little to choose between the two exchange rate regimes so far as inflation effects go. The feared propensity for inflation must clearly arise from other sources (such as those noted in the first paragraph of this Appendix). Moreover, without incomes policy to break the inertia of inflation, "transitional recession" occurs in either a floating rate or a fixed rate disinflation.[3] The main difference is that the fixed rate appears less stable or practical in a world of high capital mobility.

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[2] In the case of a large economy, the lengthy disequilibrium in balance of payments may cause critical reserve losses for fixed rate partners. Germany has illustrated this effect in the breakdown of the ERM in 1992 and 1993.

[3] cf. Ablin (1983). See also comments concluding the discussion of the Anchor issue in the text above.

Appendix 2: The "Efficient Market" Debate

Another major strand in the literature, on the problem of what moves asset prices (which has been applied primarily to the stock market), demands some attention. This has been formulated as the question of whether stock markets tend to be "efficient" in the sense of producing price levels and fluctuations, approximating the rationally "correct" values given by the relevant fundamentals. This debate is probably best represented in articles by Robert Shiller and by R. Barsky and J.B. DeLong.[1]

These authors agree upon the definition of the "correct" (i.e., rational in the perfect foresight sense) formula for determining stock market prices. These should be equal, at any time t, to the present value of the entire future stream of dividends. Shiller calls this "correct" value P_T^*. P_T is therefore the actual price index (Standard & Poor or Dow Jones in these articles). The "correct" ex-post present value series of P^* calculated by Shiller and accepted with slight modification by Barsky and DeLong, uses a constant rate of discount (r) derived simply from the mean dividend divided by the mean price. P^* fluctuates (on an annual basis) very gently from the earliest period calculated (1870 for the S&P index, 1928 for the Dow Jones).

The series of real annual price indices (P_T), in sharp contrast, fluctuates violently around the P^* curve (i.e., easily by 10 fold the fluctuations of P_T^*). These large fluctuations (up to 3 times the mean level of the P_T series) usually cover periods of, say, 2-5 years, (with some longer waves) but they retain a low but significant correlation with the P^* series (R^2 is about 10%). Some tendency towards a lagging relation from P_T^* to P_T is visibly observable, especially at market peaks such as 1929.

Shiller, in the course of statistical tests, finds that the use of a "time-varying" discount rate increases the variance of the P_T^* series. He tests the effect of using the annual series of nominal prime commercial paper interest rates and finds that doing so raises the P_T^* variance to

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[1] See R. Shiller (1981) and Barsky and DeLong (1990).

half that of P_T. He concludes that, since the use of deflated (i.e. real) interest rates, would close the variance gap much less, the bulk of the divergence of P_T remains unexplained and supports the hypothesis that actual stock price movements are dominated by "Fads and Fashions" (approximately equivalent to our "destabilizing speculation").

Barsky and DeLong: Starting from agreement that the correct or rational stock price level should follow the present value of future dividends, and accepting that changes in real discount rates can only play a subsidiary role, these authors are led to test varying methods by which the public might estimate future dividend growth which might rationalize the actual fluctuations.

Quite surprisingly, they find that, if investors in each year extrapolate to the entire future, a moving average of past dividend growth rates (with declining weights for earlier figures over a lengthy but unidentified period), then one obtains a P_T^* series (i.e., a predicted P series) which explains about 70% of the variance of the actual P_T series (about 55% of that of P/D, but only a small fraction of the monthly variance).

This result expresses, in an alternative way, the existence of an ultimate link of the actual price levels to the price levels justified by fundamentals. Yet it does not imply "efficiency" of a high degree. The attribution of each year's "adaptive" dividend growth rate to the entire future obviously contradicts the repeatedly observable fact (in the entire ex-post series) that the market never stays at or adjusts to a single dividend growth rate (for even two or three years, not to speak of infinity) and normally moves regressively in relation to recent changes in this growth rate.

The "rule of thumb" identified by Barsky and DeLong is not simply equivalent to engaging in destabilizing speculation. Yet there is a parallel element in the uncritical extrapolation of the latest moving average dividend growth rate, and the extrapolation of the recent price rise in the latter process.

In conclusion, the results discussed here, even if we regard only the unexplained variance

of the Barsky DeLong tests, point to the probability that destabilizing speculation provides a major supplement to the effect of (say) adaptive dividend expectations, in determining the high volatility (on an annual basis) of stock prices. Its contribution in relation to monthly volatility is likely to be greater still.

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