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FLOATING AND INTERDEPENDENCE:
Comment on Jacob Dreyer's Summary of Current Issues
by Allan H. Meltzer

Usually economists and policymakers complain that prices and particularly wages do not respond quickly enough or do not change enough to clear markets. When the discussion turns to exchange rates, this complaint is reversed. Policymakers, and some economists, complain that exchange rates are "too volatile" — change too much, too often and too quickly. Of course, inflexible wages and highly flexible exchange rates are not unrelated in a general equilibrium model. If wages are more flexible exchange rates are less volatile. Relatively constant policies that require fewer adjustments of beliefs, also require fewer adjustments of prices and, therefore, reduce the volatility of exchange rates.

Seven years have passed since major countries permitted exchange rates to float. Public and academic discussion does not reveal great depth of understanding about the operation of the current system, and we are far from a consensus about the net benefits of the system. On one side are those who write, or talk, as if the criterion for success of a system of floating exchange rates is the stability of exchange parities between freely floating currencies or between currencies subject to episodic official intervention. On the other side is the claim that exchange rate fluctuations are dominated by actual or anticipated monetary policies. The claim is, at times, accompanied by a prediction that exchange rate stability would be achieved if central banks and governments would renounce exchange rate intervention.
The benefits of stable exchange rates are not in dispute. I believe there is general agreement that variability is costly, even if the cost is not easily documented. Generally, low variability of exchange rates cannot be achieved by monetary policy if there are unanticipated real shocks to spending or to production. It is an open question whether intervention increases or reduces the variability of exchange rates. Doubtless there are instances in which central bank intervention stabilizes exchange rates, just as there are cases in which intervention delays adjustments that eventually occur. The average or expected value of intervention will not be positive unless the central bank is able to identify the type of shock that occurs and the duration of the shock with a high degree of reliability. I do not believe this can be done, in general, and I am certain that there is no useful evidence that it has been done. I shall develop the argument in the next section of my comments.

If the world, or groups of countries, want stable exchange rates, they can peg exchange rates and adopt a commodity standard. The advocates of a return to the gold standard press their case regularly, many would say zealously, so repetition is not required. If the main aim of policy is to stabilize exchange rates, I believe a commodity standard like the gold standard is a more reliable means of achieving that aim than central bank intervention or harmonization or coordination of policies.

Recent experience seems to show that one common argument against the gold standard is not correct. We did not avoid the social costs of mining and storing gold by abandoning the gold standard. Countries can avoid these costs, but few choose to do so. The gold price did not fall after 1968, as
some expected; desired gold holding has not declined; and gold mining has not ceased.

The case against fixed exchange rates reflects a preference for price stability over exchange rate stability, as M. Friedman pointed out years ago. Since neither prices nor exchange rates are stable in an absolute sense, I believe it is more useful to express the choice as a preference for achieving as much exchange rate stability as is consistent with price stability instead of achieving as much price stability as is consistent with exchange rate stability. But, that is a quibble with Friedman. The more basic problem is that neither price nor exchange rate stability can be achieved fully because there are unforseen real shocks, and the shocks are uncertain in their timing and have uncertain duration.

To show the problems that arise in a system of fluctuating exchange rates, I adapt the model developed by Brunner, Cukierman and Meltzer to a world with floating exchange rates. The distinctive feature of the model is that there are permanent and transitory shocks to productivity, to aggregate demand and to money. Expectations are rational in the sense of Muth. The model shows that efforts to reduce the variability of freely floating exchange rates by coordinating economic policies are not likely to be successful.

A more useful approach is to adopt stabilizing policies. Two main steps are required. One, governments should rely on pre-announced monetary policies perhaps supplemented by pre-announced fiscal policies. The former fixes the average or maintained rate of inflation, and the latter fixes the relative size of government and thus reduces this source of uncertainty about after tax real rates of return to capital and labor. Two, remove the remaining controls
on capital, prohibitions of interest payments on deposits and other restrictions that induce relatively large capital movements to avoid actual or anticipated restrictions. 3/

Real Effects on Exchange Rates

To analyze exchange rates, I use a simplified, equilibrium model. There are two economies that can be described using the model in Brunner, Cukierman and Meltzer. 4/ Each has different structural parameters, and both economies are small, open economies subject to three types of shocks — shocks to money, productivity and aggregate demand. All markets clear. All expectations are rational, and everyone knows the deterministic and stochastic structure.

Money is neutral. In fact, the systems are dichotomized, so everyone knows that monetary shocks cannot change real variables. This assumption implies that there is never any confusion between observed exchange rates and underlying real exchange rates.

There is, however, confusion between permanent and transitory values of each of the shocks. When shocks occur, generally, no one knows whether the shock will persist or vanish next period. The duration of the shock becomes more apparent as time passes, so information about all past observations is useful when forming anticipations about current values. Actual permanent values are, of course, never observed.

The perceived permanent value of the exchange rate is the value that incorporates all information about the deterministic and stochastic structure of the economy and past shocks. Let $s^p_t$ be the perceived permanent value
of the exchange rate measured in units of home currency per unit of foreign currency. In the appendix, I show that $s_t^P$ is determined by

$$s_t^P = k_t^P + A_1 e u_t^P + A_2 (1 - e u_t^P) + A_3 e_r^P$$

$$+ A_4 r_t^P - A_1 p_t^*$$

with $A_1, A_3, A_4 > 0; A_2 < 0$. Since real shocks, $u_t$ and $e_t$, affect the domestic price level, the perceived permanent values of real shocks $e u_t^P$ and $e_r^P$, affect the perceived permanent value $s_t^P$. Other variables are defined in the appendix.

Equation (1) shows that in this simplified model, with purchasing power parity expected to hold, we obtain Dreyer's second proposition: Floating rates only partially insulate economies from foreign disturbances.

On examination of equation (1), Dreyer's proposition turns out to be a restatement of the familiar proposition that real exchange rates change whenever there are changes in tastes, productivity, population and other determinants of real interest rates and relative prices at home and abroad. An increase in foreign interest rates, $r_t^P$, raises $s_t^P$ and depreciates home currency. Increases in permanent, home or foreign, productivity or in perceived aggregate demand also change the exchange rate and the perceived permanent price levels at home and abroad. If the shocks occur in foreign countries, real interest rates and price levels transmit part of the real shock to the home country by changing $s_t^P$.

Gottfried Haberler and others have made this point on many occasions, and it is restated in Haberler's paper at this conference. Once again, real exchange rates are stable exchange rates only if there are no real shocks. The problem, then, is to replace shock amplifying with shock absorbing
institutions if we are to reduce the effects of shocks on exchange rates and countries' economies.

I am not sure how to interpret Jacob Dreyer's third proposition. Monetary policy can keep the price level stable in any model in which money is neutral. Inflation permanently changes real variables but only as a result of the inflation tax, or other non-indexed taxes, and not as a result of floating. Using equation (1), we see that the variance of the log of the perceived permanent value of the exchange rate depends on the variances of \( E_{eP} \), \( E_{uP} \) and \( E_{YP} \) and similar terms for the rest of the world. 5/ The variances of nominal and real shocks in the rest of the world affect the (log of the) rest of the world perceived permanent price level, \( p^*_{p} \), and \( s^p \).

Within each country shocks to aggregate demand and productivity are independent provided governments do not try to use fiscal policy (for example \( e^p \)) to change aggregate demand when productivity shocks (\( u \)) change output. 6/ Efforts to use fiscal policy to offset real shocks introduces covariance between the shocks and opens the problem Friedman raised years ago. 7/ To stabilize the exchange rate, the policymaker must know both the magnitude of the effect and the timing of the response to fiscal policy and to the productivity shock. If his information is incomplete, policy may increase the variance of exchange rates.

The oil shock was not unique to the United States, so there are additional effects to consider. \( E_{u^*} \) is a determinant of \( r^*_{p} \) and \( p^*_{p} \). The variance of \( s^p \) depends on the relative variances of \( u^p \) and \( u^*_{p} \), on the relative variances of fiscal and monetary policies, and on the covariances between these terms. The variance of the trade weighted exchange rate was almost certainly increased by
the oil shock and subsequent policies. The data on trade-weighted exchange rates show substantial variability. The trade-weighted dollar fell sharply both before and after adjustment for changes in relative price indexes. Later, in 1975, the dollar recovered much of its fall.

The data are also consistent with the view that fiscal and monetary policies altered the effects of the worldwide productivity shock after 1974. The Ford administration policy of vetoing spending bills and the reduction in the growth rate of money in the U.S. during 1975 and 1976 appear to have lowered $s_P$. The fiscal and monetary expansion of 1977 and the misguided locomotive policy of 1977 and 1978 contributed to the later fall in the exchange value of the dollar (increase in $s_P$). These policies also contributed to the variance of $s_P$ over time.

An Alternative to Coordination

I have considered only permanent effects. In practice, activist policymakers must separate permanent and transitory effects of home country and rest of the world policies.

If we invoke rational expectations, and ignore differences in information, $s^*_t$ is the value at which everyone expects the exchange rate to settle on the basis of information available today. This rate cannot be known with certainty because we observe actual, not permanent, values. In a world of rational expectations, policymakers can intervene to stabilize exchange rates only if they possess superior information about permanent values. This is, of course, a standard problem and is not unique to exchange rates, whether freely floating or managed.

I do not dissent from Dreyer's "universally accepted proposition" that in the long-run market forces produce an equilibrium value of the exchange
rate. I go further. The market produces an equilibrium exchange rate every day, but the equilibrium rate is subject to change whenever the market receives new information. Equilibrium rates are not constant rates.

What can central banks do? We are now twenty years into the era of rational expectations, so we should begin to absorb the main lessons. There are, I believe, four main lessons: One, because there are risks inherent in nature, trade and social arrangements, prices and quantities fluctuate; large shocks can have large effects on prices, employment and exchange rates. Two, the best we can do currently is design institutions or arrangements that minimize the cost of adjusting to shocks. Three, generally central banks do not have superior information about real and nominal, permanent and transitory effects. Unless they have superior information about shocks and their effects through time, they cannot expect to stabilize exchange rates. Fourth, agents of the central bank often mistake the temporary effect of central bank intervention, arising from the reluctance of speculators to bet against the momentary effects of intervention, for longer-term effects on the value of a currency.

Central bankers and governments have contributed to, and even created, high and variable inflation, low growth and high unemployment by inappropriate policies during the past two decades. Their past mistakes do not give us reason to believe that they have information about prices, economic activity, interest rates and other variables that permits them to stabilize exchange rates by means of coordinated efforts in the exchange market.

The time passed long ago when we should have shifted our focus from attempts to fine tune prices, output, interest rates and exchange rates, to focus on the more important problem of finding arrangements that reduce risks
arising from shocks inherent in nature and resulting from social arrangements. The list of such arrangements begins with a monetary rule, adds a fiscal rule setting the maximum ratio of government spending to output or setting the anticipated growth of taxes and spending and includes removal of remaining impediments to capital and to trade.

Policies of this kind establish procedures to which markets adapt. They eliminate the risks arising from destabilizing shifts in policy. Known procedures and credible pre-announced policies permit the type of coordination, through the action of informed traders and speculators, that reduces variability in markets. But variability of exchange rates will be "low" under constant policies only if real shocks are small.
APPENDIX

The perceived permanent values of the variables are obtained from the equation for the output market (A1), the money market (A2), the production function (A3) and the belief that purchasing power parity holds for permanent values (A4). The fact that the model is dichotomized removes permanent effects of unanticipated inflation on real variables.

(A1) \[ y_t^P = k + \alpha y_t^P + \beta_1 r_t^P + \beta_2 s_t^P + Ee_t^p \]

(A2) \[ m + EY_t^P = B + p_t^P + y_t^P + b_1 r_t^P + b_2 r_t^{*p} - \theta_1 E\varepsilon_t^P \]

(A3) \[ y_t^P = \delta l_t^P + Eu_t^p \]

(A4) \[ s_t^P = p_t^P - p_t^{*p} \]

The symbols are perceived permanent values of:

- \( y_t^P \) = output
- \( r_t^P \) = market rate of interest
- \( s_t^P \) = spot exchange rate
- \( l_t^P \) = labor force (a given)

The expected values of perceived permanent shocks to productivity, aggregate demand and money stock are \( Eu_t^P, Es_t^P \) and \( EY_t^P \) respectively. The actual values of the shocks, \( u, e \) and \( \varepsilon \) include permanent and transitory components. Parameters \( \alpha, \theta_1 \) and \( \delta \) are positive; \( b_1, b_2, \beta_1 \) and \( \beta_2 \) are negative. Asterisks indicate foreign or rest-of-the-world variables; e.g. \( p_t^{*p} \) is the permanent price level in the rest-of-the-world.
The solution for $s^p_t$ is equation (1) of the text:

$$s^p_t = K^p_s + A_1 E^p_t + A_2 (\delta^p_t + E^p_t) + A_3 E^p_t$$

$$+ A_4 \tau^{*p}_t - A_1 \tau^{*p}_t$$

where $K^p_s$ is a constant and

$$A_1 = \frac{-\beta_1}{D} > 0$$

$$A_2 = \frac{b_1 (1 - \alpha) + \beta_1}{D} < 0$$

$$A_3 = \frac{-(b_1 + \beta_1 \theta_1)}{D} > 0$$

$$A_4 = \frac{\beta_1 b_2}{D} > 0$$

$$D = \beta_2 b_1 - \beta_1 > 0$$
FOOTNOTES


4 Op.cit. A copy of the paper is available on request. The equations for permanent values of the open economy, discussed here, are stated explicitly in the appendix to this comment.

5 Foreign variables $p^*$ and $r^*$ depend on productivity and aggregate demand in the rest of the world and therefore depend on $Ee^*$ and $Eu^*$.

6 Since the model is dichotomized and everyone knows the structure, monetary policy cannot offset real shocks.