



## The Effect of Forward Exchange Intervention: Reply

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intervention activity. This relationship, and its variability, could conceivably allow interventionists to tune the relationship between the expected spot rate and the forward rate in ways one cannot when considering only one such element as a variable.

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### THE EFFECT OF FORWARD EXCHANGE INTERVENTION: REPLY

#### I. INTRODUCTION

William Gruben has written an interesting extension to my earlier [2] paper on this subject. Unfortunately Gruben not only fails to make all the assumptions of his model clear but also raises more questions than he answers. Perhaps that was his intention; in any case, I believe that the subject deserves further treatment. It is my intention to outline the issues raised and suggest possible ways in which they can be resolved.

My October 1972 paper developed mathematically the conditions under which forward intervention could result in an adverse rather than beneficial effect on capital flows via changes in the expected spot exchange rate. Two cases were examined, one in which the elasticity of the AA schedule<sup>1</sup> was  $= -\infty$  and the other in which the elasticity was  $\neq -\infty$ . In the first case the appropriate variable was  $(dM^d/dI)$  or the effect of a given dollar amount of forward contracts of the foreign currency sold by the central bank on the net flow of money to the domestic country. In the second case the appropriate variable was  $(dM^d/dF)$  or the effect of a change in the forward exchange rate on the net flow of money to the domestic country. Virtually

ignoring the former case, Gruben has summarized this latter situation in his paper, which up to page 156 virtually quotes or paraphrases my 1972 paper. In the summary of my discussion of the possible diversion of forward speculation funds to spot speculation, Gruben has given a somewhat misleading treatment because he has not mentioned the qualifications I had carefully made in footnote 12. The important point to realize is that since the forward speculators do not as a rule speculate with their own funds but rather use margin accounts, a situation results in which a change in  $F$  will not necessarily release  $\psi(\partial(S^e - F)/\partial F)$  funds into spot speculation. If we assume that the margin requirement is  $\xi$  and in addition make the further assumption that all the diverted funds go into spot speculation, the net effect of forward intervention on inflows into the domestic country is:

$$dM^d = dF[(\partial S^e/\partial F)Z + \phi] + \xi[\psi(\partial(S^e - F)/\partial F)] \quad (1)$$

The above equation is actually my old equation (7) with the diversion of funds from forward speculation added.<sup>2</sup> While there is no

<sup>1</sup> Unless otherwise noted the notation in this paper is the same as used in [1], [2], and [3].

<sup>2</sup> In [2] the effect of diversion was handled by a discussion of how diversion would change  $Z$ . Perhaps it is better for expository purposes to assume that the

question that a diversion of funds from providing margin for forward speculation to spot speculation may very well increase the outflow, the diversion of forward speculation funds associated with  $[\partial S^e / \partial F] > 1$  may not be as serious as a first impression might suggest.

## II. THE MECHANISM BY WHICH FORWARD SPECULATION AFFECTS SPOT SPECULATION

In my earlier paper an effort was made to develop the conditions under which forward speculation would worsen, not help, the foreign exchange outflow. Apart from brief references to the fact that "if the central bank commitment is known, it must be strong enough and decisive enough so that there is little doubt in the speculators' minds that the central bank will be able to hold the exchange rate" [2, 315], there was no explanation of exactly how expectations of the spot rate are formed from *changes in the forward rate due to intervention*. The intent was to investigate the implications of various effects of forward intervention on the expected spot exchange rate.

Gruben has tried to extend these results by considering the effects of "decisiveness" and "strength" without successfully distinguishing the two.<sup>3</sup> The most important omission is a total neglect of the question whether the movement in the forward rate is perceived as arising from market forces or whether the market realizes that the government is heavily involved in intervention. Another serious omission is the neglect of the real side of the situation. If the currency is under at-

spot speculative demand function remains fixed and to add in explicitly the funds diverted from forward intervention. Such an addition has been made in equation (1) above.

<sup>3</sup> It is unclear whether Gruben believes "decisiveness" implies a quick movement in  $F$  or a large change in  $F$ . Nor is it clear what Gruben feels "strength" means. Possibly a working definition would be that forward intervention exhibits *strength* if the government is prepared to follow a policy for a long time in the face of losses and that such a policy is *decisive* if the reaction of the government is timely. See Webster [4].

tack because of high domestic inflation in relation to the world rate of inflation, the effects of forward intervention will be substantially different from the effects which result when the currency is under attack due to some seasonal balance of payments flow.<sup>4</sup>

A model for determining whether there is government intervention is contained in Stokes [3], a paper Gruben appears to have overlooked. According to the theory presented there, if the forward rate ( $F$ ) is outside the bounds of  $S^e$  and  $F^*$ , then there is clear evidence that the government is intervening in the forward market since in all cases both the arbitragers and the forward speculators are on the same side of the market.<sup>5</sup> Consider case 12 [3] ( $S^e > F^* > F$ ), which is the situation that usually results when a currency is under serious attack and the government is in the market. Here it is clear that the government is intervening and that the effect of  $\Delta F$  on  $S^e$  will depend on whether the public feels that the domestic currency is seriously overvalued and that the government is just forestalling the inevitable devaluation or that the government is just preventing a seasonal (or cyclical) adverse movement in the balance of payments. In the latter case the strength or apparent resolve of the government will be the determining factor. It is interesting to speculate that if the government were to move the forward rate sharply, the market would most likely be alerted that either the government was intervening or there had been a sudden shift in the demand function for forward currency. It is not at all clear that such a policy is the best one the government could pursue. Perhaps what is called for is a slow movement in  $F$  or a policy to

<sup>4</sup> If the former case occurs, then government intervention in the forward market is futile in the longrun and will serve only to delay the inevitable. If, on the other hand, the outflow is due to seasonal factors, a case can be made for intervention. The way that the market perceives the situation will determine the effect of a given forward exchange intervention policy.

<sup>5</sup> See cases 9–12 Stokes [3, 996]. Intervention is also indicated when  $F$  is inside the  $S^e$ ,  $F^*$  bound if  $|C_{AT}| \neq |C_{ST}|$ .

hold  $F$  at some level. In these situations it is often not apparent to the market that the government is intervening. Gruben seems to imply that the government must show that it is in the market. Quite the opposite policy has usually been followed, and we have virtually never seen the government announcing at the time that it was intervening in a market. Such a "show of force" would most likely be quite counterproductive.

### III. SUMMARY

The effect of forward intervention on the expected spot exchange rate is not going to be settled by theory alone. However, it is important to attempt to distinguish between the effect of changes in the forward exchange rate which are perceived as arising from market forces and those which are seen as arising from government intervention.

Casual empiricism suggests that these effects are not the same.

By ignoring these factors and focusing on the narrower technical details such as the absolute movement of the forward exchange rate due to intervention or the speed of such a movement, Gruben neglects the most important factors.

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