A MODEL OF EXCHANGE RATE DETERMINATION IN A DUAL EXCHANGE RATE MECHANISM**

BY

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A dual exchange rate mechanism (DERM) is characterized by the coexistence of a floating1 'financial' exchange rate and an 'official'2 exchange rate which is normally considered to be fixed.3 This particular exchange rate mechanism has in recent years attracted increased attention both from policy makers and from theoreticians. The Belgium Luxemburg Economic Union has used it ever since the mid-fifties, and France and Italy introduced it in August 1971 and January 1973 respectively (the latter countries abandoned it again in March 1974).

In a DERM the current account transactions are channeled through the official market, and the capital transactions are channeled through the financial market. This channeling is of course only possible if there is a control apparatus that segregates those two categories of transactions. The practical difficulties involved in policing a DERM are considered to be outside the scope of this paper. Unless the contrary is mentioned, we will assume here that the segregation of the markets is complete.

The main advantages of a DERM are believed to be: (1) that it could remove pressure from the official reserves caused by (especially speculative) capital flows; (2) that it could provide a means for influencing these flows; (3) that at

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1 It is a fallacy to believe that this has to be a free float. In fact, fuller exploitation of the possibilities of the system requires government intervention in the financial market.

2 Whenever we use here the adjective 'official' in relation to nouns such as market, rate, etc., it refers to the 'current account' character of the market, rate, etc. So it should not be interpreted to indicate any action by the authorities. When we want to refer to actions by the authorities we will use the adjective 'government', and hence discuss e.g. government intervention.

3 It is not strictly necessary to have the official rate fixed. Some of the alleged advantages of the DERM e.g. little exchange rate uncertainty for traders, get lost however if also the official rate is floating.
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the same time it protects traders against the uncertainty resulting from freely fluctuating exchange rates, and avoids the distortions in resource allocation that can (allegedly) be caused by them.

We start our theoretical analysis of the foreign exchange market of the domestic country (which we assume to have a DERM) by determining the role of the different participants in the various markets. We will investigate in sections 2 and 3 respectively the official market (spot and forward) and the financial market (spot and forward) separately. More specifically, we will analyse what scope there is in the official and financial market for the three activities: hedging, speculation and covered interest arbitrage that determine exchange rates. In section 4 we will discuss the interdependence of the various markets.

1 THE SETTING

We assume a two-country world. Exchange rates are all defined as the number of units of domestic currency (we assume this to be francs) per unit of foreign currency. The official spot rate on day \( t \) will be denoted as \( OSR_t \). The forward rate in the official market (we assume for simplicity a single standard forward market period of three months) on day \( t \) will be denoted as \( OFR_t \). Similarly, we denote the financial spot rate on day \( t \) as \( FSR_t \), and the financial forward rate (with the same qualification) on day \( t \) as \( FFR_t \). The (unique) domestic interest rate and the (unique) foreign interest rate are denoted as \( ID_t \) and \( IF_t \) respectively. The theoretical framework is a daily flow equilibrium model, that is conceptually close to one established by Tsiang.

Although we are not developing a model to explain capital flows as such, the portfolio approach to capital flows is the underlying philosophy at dif-

4 To avoid confusion we state the different definitions, which are essentially those given by S. C. Tsiang, 'The Theory of Forward Exchange and Effects of Government Intervention in the Forward Market,' *IMF Staff Papers*, VI (1959), pp. 75-106, explicitly.

\textit{Hedging} is defined as the operation whereby a merchant transforms the contracted amount of payment or receipt in foreign currency immediately into an obligation or a claim fixed in his own currency by means of a purchase or sale of forward exchange of the same amount.

\textit{Speculation} is defined as the deliberate assumption or retention of a net open (long or short) position in foreign exchange upon consideration of the current forward rate and the probable future spot rate which the operator concerned expects to prevail.

\textit{Covered interest arbitrage} is defined as an international transfer of spot funds for short-term investment purposes covered by a simultaneous forward transaction of the same amount in the opposite direction (This operation leaves the net position and exchange risk of the operator unchanged).

5 S. C. Tsiang, *op. cir.*

6 This type of mean-variance portfolio framework has in its general form been criticized quite severely (K. Borch, 'A Note on Uncertainty and Indifference Curves,' *Review of Economic