exhausted (see the lower dashed line in figure 1). The episode of price fixing only postpones the date $\tilde{p}_t$ reaches $p^c$. In the case $D(p) = p^{-\sigma}$, $T^* = \bar{p}^{\sigma} S_0 - (1/r\sigma)$. ($T^* \leq 0$ implies an attack the moment price fixing is attempted.)

Why does the crisis occur precisely on date $T^*$? For dates $t_1$ earlier than $T^*$, there would be a sharp fall in the price of gold, from $\bar{p}$ to $\tilde{p}_{t_1}$, once the economy's gold stocks were again in private hands. The prospect of this loss would induce each individual speculator, and hence all of them, to refrain from buying gold from the government at price $\bar{p}$ on date $t_1$. For dates $t_2$ later than $T^*$ an attack would force the market price of gold to jump upward, from $\bar{p}$ to $\tilde{p}_{t_2}$. The prospect of such an instantaneously infinite rate of capital gain would entice each speculator, and hence all of them, to buy as much gold as possible at the official price an instant before $t_2$. Thus, $T^*$ is the exact date of the crisis. On that date, speculators purchase all gold held by the authorities but there is no discrete jump in gold's price[1].

## 1.2. The Foreign Exchange Market Analogy

To analyze the collapse of a fixed exchange rate in a model analogous to the foregoing resource model, imagine a monetary economy in which the demand for domestic (high-powered) money takes the form

$$(4) \qquad \frac{M_t}{P_t} = Ae^{-\eta i_t},$$

where $A$ is a constant, $P_t$ is the domestic money price level, and $i_t$ is the domestic nominal interest rate. Under perfect asset substitution, capital mobility, and perfect foresight, the domestic nominal interest rate is linked to the (constant) foreign nominal rate $i^*$ by the interest parity condition

$$(5) \qquad i_t = i^* + \dot{E}_t / E_t,$$

where $E_t$ is the price of foreign currency in terms of domestic currency (the exchange rate) and $\dot{E}_t / E_t$ is the instantaneous expected (and actual) rate of change in that price. To make matters as simple as possible, let purchasing-power parity (PPP) link the domestic and foreign price levels. With the latter assumed constant and normalized at unity, PPP implies that we can identify the price level $P_t$ with the exchange rate $E_t$ (so that $P_t = E_t$ henceforth).

If the exchange rate is fixed at $E$, the central bank must stand ready to intervene in the money market so that domestic monetary conditions remain consistent with that rate. Write the central bank's balance sheet (ignoring net worth) as

$$(6) \qquad M_t = C_t + Ef_t,$$

where $C_t$ is nominal domestic credit and $f_t$ the stock of foreign-exchange reserves, valued in foreign currency. In principle, central-bank financial operations take the form of variations in $C_t$ as well as in $f_t$; provided domestic and foreign-currency bonds are perfect substitutes (as is assumed in (5), and as is necessarily the case under a credibly fixed exchange rate), the two types of operation are equally efficient means of maintaining the exchange parity. Attack models *à la* Krugman (1979) assume, however, that the domestic-credit process in exogenous, meaning that the bank's reserves bear the full adjustment burden to balance-of-payments pressures. Specifically, the model assumes that domestic credit grows at a constant proportional rate $\gamma > 0$ regardless of events in the foreign exchange market:

$$(7) \qquad \frac{\dot{C}_t}{C_t} = \gamma.$$

The strong assumption (7) implies that official reserves will be declining through time while the exchange rate remains fixed; this ever-shrinking reserve stock is analogous to the declining resource stock in the Hotelling-Salant-Henderson model. As long as the exchange rate is fixed at $E$, expected

(1) Observe that for $t > T^*$, the competitive price $p_t$ is below $\tilde{p}_t$ because the former price rises only at rate $r$ once the collapse has taken place.