

**Monetary and Exchange Rate Policy in Ghana – The  
Dutch Disease Syndrome of Aid Flows and Terms of  
Trade Shocks**

**J.L.S. Abbey**

**(Executive Director)**

**Centre for Policy Analysis**

**Accra**

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Assume a three-commodity world comprising exportables (or simply exports on assumption of no domestic consumption) X, importables, M and non-tradables N.

***Monetary Sector***

$$M_s = mH;$$

where  $M_s$  is the supply of money; H is Reserve Money (a liability of the BOG) and m is the money multiplier defined as:

$$m = (1+c)/(r+c) ;$$

where c is simply the cash/deposit ratio of non-bank public; and r is the prudential reserve/deposit ratio of deposit money banks (DMBs).

The demand for money by the non-bank public sector is simply taken to be the transactions demand (the asset demand for domestic money is assumed negligible):

$$M_d = kPy = kY ; Y = Py$$

where  $k = a(1-q_s)$  ; s is average propensity to save out of income (y); q is the proportion of financial asset accumulation.

On the assumption that exportable good is not consumed

domestically, expenditure (E) comprises on importables (M) and non-tradables (N) and transactions demand, D, is:

$$DM_d = aE = a(P_nN + P_mM)$$

Financial asset accumulation is  $q_sPy$  or  $q_sY$  so that

$$E = (1-q_s)Y$$

And finally,

$$M_d = aE = a(1-q_s)Y = kY$$

Monetary (stock) equilibrium then requires

$$kY = mH$$

The process by which Reserve Money (H) is altered depends upon whether the exchange rate is freely floating (fund prescription) or managed (BOG preference). Under floating and assuming no significantly large holdings of cedis abroad, then the fiscal deficit is the only mechanism or source.

Under a pegged rate regime, the change in H results from the fiscal deficit and the official settlements payments surplus.

### ***Policy Under Fund***

In a windfall (larger than programmed aid disbursements or an unexpected positive terms of trade (TOT) shock as in 1998) the demand far increases on account of increased real expenditure, which, since it "*reflects the increase in permanent income, is discrete and sustained*". This has been termed the 'liquidity effect' (Neary, 1985). This latter is distinguished from the 'asset effect'. This latter arises as follows: The non-bank public sector (NBPS) or at least the vast majority are not allowed under the Exchange Control Act to diversify their assets accumulation into foreign financial assets. This activity is, if at all, performed by the DMBs, against whom the NBPS acquire claims denominated in cedis – bank savings and time deposits. [We have abstracted from foreign currency denominated bank deposits because of the CEPA preference for M2

rather than M2+ in analytical work].

Under the prudential assumptions above, the DMBs will hold two types of assets as the counterpart to the increased holdings of bank deposits. To support the increase in deposits they will hold additional cash reserves,  $r$  (change in deposits) which is a claim on BOG. Beyond that, they will also increase their holdings of foreign financial assets. The latter will show in the balance of payments as outflows of private capital. The counterpart to the increased cash reserve holdings of the DMBs would show as increased net foreign assets holdings of the BOG (i.e., positive  $\Delta NFA_{BOG}$ ). The BOG is thus a custodian of a fraction of the foreign financial assets temporarily and indirectly accumulated by the NBPS, the fraction being determined by the reserve/deposit ration of DMBs.

Combining the liquidity and asset effects, the demand for money jumps at the onset of the windfall, then rises further as a result of the build-up of financial assets, and subsequently declines. Whether these changes are accommodated by changes in money supply or by offsetting changes in other components of money demand is the challenge of policy formulation, depending in particular on the fiscal policy adopted and with far reaching consequences for macroeconomic stability.

Before considering this further it is convenient to explore, if only by implication, the experiences of the last few years.

(i). The Fund position is taken to be to stick with the program target on reserve Money – often a critical performance criterion. Now as a result of the windfall, there is a permanent increase in real expenditure and hence even with prices unchanged, there is a corresponding increase in the demand for money. And under the floating exchange rate policy (in Fund package) this can only be accommodated by a budget deficit – the money multiplier,  $m$  above, is assumed stable. Unless there is a budget deficit funded by borrowing from the BOG, the increased demand for money could only imply a permanent fall in the price level.

(ii). Instead of seeking a waiver for the non-observance of this performance criterion – and the entire Fund-backed program could be jeopardized since there can be no guarantee that the Executive Board could automatically grant the waiver ex-post – the Fund has lately introduced ‘adjusters’ into its Arrangements with reforming member states. Thus, a variant of the first scenario would allow, through adjusters, for a deficit together with increased domestic bank borrowing but "requiring a continuously ‘constant’ price level – i.e., at the program target level. A point of note is that there is a temporary component of the increase in the demand for money and hence a policy objective to keep prices constant would require a corresponding "additional temporary deficit". This consequently imposes a particular, and curious, pattern on fiscal policy.

(iii). A third probability is that fiscal policy is adjusted in such a way that "the windfall has no permanent effect on the price level". This implies that at some stage there is a deficit. However, it is assumed that during the windfall, there is fiscal balance, so that the changes in demand for money must be accommodated by offsetting changes in other components of the demand.

If only implicitly, the perceived BOG preference is a monetary policy which "minimizes inflation", in the context of downward inflexibility of prices – no nominal prices are required to fall. This policy stance as noted by CEPA would involve maintaining the nominal exchange rate constant (and consequently inconsistent with fund policy package). CEPA analyses of the recent Ghanaian experience has often drawn attention to the implicit use of the exchange rate as a nominal anchor in an anti-inflation framework not fully consistent with the official agreed program with the IMF. These conflicts in policy making and implementation are the root of the unsustainability of macro stability and the current financial crisis. The point of the present exercise is consequently forward looking in

the sense of how policy can be better tailored to fit the analytical research outputs.

In the proposed modified Fund framework, short-run changes in demand for money, which occur during the windfall, are not accommodated by supply and so must be offset. Long-term changes, however, are accommodated. Thus in the short-run offsetting declines in the remaining transactions demand are required. In the floating exchange rate regime, this is achieved by a temporary appreciation of the cedi. This lowers the domestic price of tradables – specifically importables since there is no domestic consumption of exportables – and is an automatic response to the excess demand in the currency market. In the long run, because by assumption there is no change in the price level, the nominal exchange rate reverts to its initial level.

NN = Locus of effective equilibria in N market; DD = locus of monetary equilibrium

The time path of the exchange rate reflects the time path of the demand for domestic currency: there is a temporary appreciation – from  $e_0$  to  $e_1$  – followed by a depreciation of the same magnitude. The asset and liquidity effects cause a jump in the exchange rate at the onset of the windfall. As foreign financial assets are depleted, so the asset demand for domestic money derived from them falls. This decline in demand for money is offset by exchange rate depreciation. Hence the nominal exchange rate jumps at the onset of the windfall and declines during asset decumulation, eventually reverting to its initial level.

### ***The Managed Exchange Rate Scenario – The BOG Preferred Case.***

The Bank of Ghana prefers – not atypical in developing countries – to intervene directly in exchange rate determination, selecting a target rate, or paths, which it can only maintain by means of reserve accumulation and decumulation. With such interventions there are two ways in which a temporary windfall can generate a divergence between the actual exchange rate and that which would prevail in a fully floating market – resulting in an inconsistency between the official policy stance as contained in the program agreed with the IMF under the

PRGF and its implementation.

(a). the Bank of Ghana could simply keep the nominal rate fixed. In this case, the divergence is identical to the path taken by the floating rate – initially an appreciation and a subsequent equivalent depreciation.

(b). Corresponding more closely with the experience in the 1998 episode, given "the policy rule" the BOG was to determine the exchange rate – appreciation with reserves build-up and depreciation otherwise, the windfall triggers changes in the rate. The divergence then depends upon differences between the policy rule and the determination of the floating rate.

In each of these cases, the divergence in the exchange rate has consequences for the price level and the real economy.