<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Exchange rate liberalization and market efficiency in the Gambia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authors(s)</strong></td>
<td>Walsh, Brendan M.</td>
</tr>
<tr>
<td><strong>Publication date</strong></td>
<td>1993-07-19</td>
</tr>
<tr>
<td><strong>Series</strong></td>
<td>UCD Centre for Economic Research Working Paper Series; WP93/20</td>
</tr>
<tr>
<td><strong>Publisher</strong></td>
<td>University College Dublin. School of Economics</td>
</tr>
<tr>
<td><strong>Item record/more information</strong></td>
<td><a href="http://hdl.handle.net/10197/1731">http://hdl.handle.net/10197/1731</a></td>
</tr>
<tr>
<td><strong>Notes</strong></td>
<td>A hard copy is available in UCD Library at GEN 330.08 IR/UNI</td>
</tr>
</tbody>
</table>
Exchange Rate Liberalization and Market Efficiency in The Gambia

by

Brendan Walsh

Department of Economics
University College Dublin

Working Paper Number 93/20

July 1993

UNIVERSITY COLLEGE DUBLIN

Department of Economics

BELFIELD, DUBLIN 4, IRELAND
Exchange Rate Liberalization and Market Efficiency in The Gambia

Brendan Walsh

Department of Economics, University College, Dublin

Abstract: This paper examines the experience of The Gambia following the liberalization of its exchange rate and financial markets in the mid-1980s. It is shown that although nominal interest rates are high, and the real interest rate positive, there is no evidence of systematic excess returns to holders of Gambian treasury bills. The outcome suggests that floating the exchange rate can avert the 'peso problem' and work efficiently even in an extremely thin foreign exchange market.

JEL Classification Codes: O16; F31

Key words: Exchange rates, Floating, Liberalization, Efficient Markets.

Date of this version: July 19, 1993

Correspondence to: Brendan Walsh, Department of Economics, University College, Dublin 4, Ireland. Fax: +353-1-283 0068 Phone: +353-1-706 8320 eMail: BMWALSH@IRLEARN.UCD.IE

"An earlier version of this article was circulated as an Economic Note in the Ministry of Finance, The Gambia, when the author was with the Harvard Institute for International Development. Helpful comments were received from Patrick Honohan and Fred Withans. Responsibility for the views expressed is solely mine."
1. Introduction.

The choice of an appropriate exchange rate regime is an important component of economic policy in developing countries, yet there is a dearth of evidence on the effects of alternative regimes. The typical adjustment program for debt-distressed developing countries incorporates policy conditions agreed with the International Monetary Fund (IMF) and the World Bank which include a commitment to liberalizing the market for foreign exchange, removing controls on capital flows and establishing a convertible currency. A cleanly floating exchange rate is an embodiment of these conditions, yet one that is rarely adopted by developed countries, much less by low-income countries.

This paper studies the experience of The Gambia, which adopted a floating exchange rate as part of a structural adjustment program in the mid-1980s. It looks at the implications of financial liberalisation for interest rates and the functioning of financial markets. \[ \text{The evidence suggests that the floating exchange rate system and market-determined interest rates adopted as part of a wider structural adjustment program have worked efficiently and been beneficial for the country's economic development.} \]

2. The Choice of an Exchange Rate Regime

It is easy to make a case for fixed exchange rates as the optimal regime for a developing country. A nominal exchange rate peg provides an anchor for domestic prices and can play an important role in establishing financial discipline. In countries where the record of the past makes it difficult for the authorities to gain credibility for anti-inflationary policies, a commitment to an external standard can form an important component of a reform program. There is some evidence that developing countries adhering to pegged exchange rates experienced lower rates of inflation in the 1970s and 1980s than countries with more flexible regimes (Aghevli, Khan and Montiel, 1993). Furthermore, for a small open economy, burdened with heavy debt service and meagre foreign exchange reserves, the risks of floating are obvious. Fluctuations in the supply and demand for foreign exchange could cause wide swings in the exchange rate and disrupt international trade and investment, as suggested in the following passage:

\[ \text{The experience with fully flexible exchange rates, even in the thickest markets, such as that for the dollar, is very mixed. . . When the exchange market is left to trade flows and speculators, major and unwarranted exchange rate movements may very well take place. These quickly spill over to prices of traded goods and from there to wages and to the budget. It may be extraordinarily difficult to maintain macroeconomic stability when} \]
external balance shocks, political shocks, or simply a bad day in the foreign exchange market produce such waves. Flexible exchange rates may be appropriate for major currency blocs, but they are certainly a poor idea for an individual developing country. (Dornbusch, 1988, p. 104.)

However, there are important arguments in favour of exchange rate flexibility, even in a developing country. The optimal currency area literature emphasises the role of changes in the exchange rate in helping economies adjust to country-specific exogenous shocks. Moreover, when the rate is pegged, the risk of a misalignment is ever-present. If the authorities resist adjusting the exchange rate to reflect divergences between domestic and international costs and prices, a loss of competitiveness follows, with adverse implications for the growth of the traded goods sectors. In addition, a fixed exchange rate may lead to excessively high domestic interest rates. This is the "peso problem" which arises when the perceived probability of a devaluation is low in any period, but it is believed that when one occurs it will be large. This may lead to a significant premium on interest rates and the possibility of earning excess returns from holding domestic assets by being compensated for the risk of a devaluation that does not materialise. High interest rates would retard growth to the extent that the adverse effect of the higher cost of capital outweighs the positive effect of high returns to domestic savings, which has generally been found to be the case in developing countries (Greene and Villanueva, 1990). A floating exchange rate, or a frequently-adjusted peg, should avert this penalty. Thus, the choice of an exchange rate policy clearly involves trade-offs between different policy goals.

Freely floating exchange rates have not generally appealed even to the governments of the large industrialised countries. After pegged exchange rates gave way to generalized floating during the 1970s, frequent attempts were made to reestablish "zones of monetary stability", exemplified by the European Snake and the European Monetary System. Even the United States implicitly abandoned its commitment to market forces in this area in order to reverse the rise of the dollar in the mid-1980s.

However, at least in part in response to adjustment programs formulated in consultation with the international donor community, there has been a steady move away from rigidly pegged exchange rates in the developing world. In the mid-1980s only a handful (between 10 and 20) of the 150 or so members the
IMF were classified as having “independently floating” currencies. By end-1992 the number of countries with floating currencies had grown to 44, and a much larger number had adopted “flexible” exchange rates. However, relatively few of these are small, developing economies. The Gambia has a total GDP of only $227 million (at 1990 prices) and GDP per person is only $260. It is therefore one of the poorest smallest countries in the world to pursue a freely floating rate. This regime was adopted as part of a comprehensive program of financial liberalization in the mid-1980s. Many of the arguments against adopting an independent currency would seem to apply with force to such a small, low income and debt-distressed country. It is therefore of interest to see how it has fared under a liberalized system.

3. The Gambian Financial Sector

As a former British colony, the country maintained close financial links with London. Between Independence in 1965 and the end of 1985 the Gambian currency (originally called the Gambian pound, now the dalasi) was pegged to the pound sterling. Its value was adjusted only twice over this period, in March 1973 when it was revalued from D5/£ to D4/£, and in February 1984 when it was devalued to D5/£. During the 1980s strains emerged as a result of maintaining the pegged exchange rate as was evident in the marked divergence between the official and parallel market rates. By the end of 1985 the parallel market rate was almost double the official rate. The Economic Recovery Programme (ERP) launched in 1985 contained a commitment to liberalizing financial markets and in January 1986 the arrangement of pegging the dalasi to the pound sterling was abandoned and a flexible exchange rate system introduced. Ensuring the smooth functioning of this system was a central component of The Gambia’s Structural Adjustment Programme (SAF) and Enhanced Structural Adjustment Programme (ESAF) which ran from 1986 to 1991. The intent was to reduce the disparity between the rates in the official and parallel markets, to eliminate distortions in the allocation of foreign exchange and to increase the role played by the commercial banks as intermediaries in this market. The implementation of this reform has been monitored by the IMF principally by tracking the behaviour of the exchange rates in the parallel market relative to the official rates.

The IMF publishes a table of the exchange rate arrangements of all its members in each issue of International Financial Statistics.
Under the new system, the commercial banks transact foreign exchange deals freely between themselves and with their customers at mutually agreed rates. They are expected to offer for sale to the Central Bank any foreign exchange surplus to agreed working balances. The exchange rate fixed in this sale is used in valuing official transactions during the following week. This key rate is quoted in terms of dalasi per pound, which reflects the importance of sterling in the country’s international trade and transactions.

Following the floatation of the dalasi, the gap between the rates on the parallel and interbank markets narrowed. By the middle of 1986 the parallel rate was less than four percent above the interbank rate and, apart from a brief episode in mid-1989 when it widened to over ten percent, the gap between the two rates has remained small since then. The IMF in its reviews of The Gambia’s economic performance has taken this as evidence of the satisfactory working of the flexible exchange rate system (Hadjimichael et al., 1992). However, the dalasi has continued to be influenced by movements in sterling and significant divergences have arisen from time to time between the "local” and "international” cross-rates.²

In tandem with the liberalization of the foreign exchange market, The Gambia’s adjustment programs required the authorities to ensure that interest rates are "market determined” and that credit is allocated in accordance with commercial criteria. This is done by relating all interest rates to the Treasury Bill rate, which is established at the bi-weekly auction of T-bills introduced in mid-1986. The commercial banks, parastatal companies and private individuals participate in the auction. The bills on offer are allocated competitively on the basis of tender prices and the T-bill rate is calculated as the weighted average of the yield of the accepted tenders. The Central Bank does not buy back unsold bills in order to maintain an artificially low rate, but commercial banks can replenish their reserves by rediscounting bills at the Bank Rate.

Figures 1 and 2 show the nominal rate on T-bills since the liberalization of financial markets. The

²It is possible to argue that during some periods since 1986 The Gambia followed an adjustable sterling peg rather than a clean floating (Walsh, 1991).
real rate$^3$ averaged 5.2 per cent per annum over the period 1986-92. This contrasts with the period before 1986, when negative real interest rates prevailed. Critics of the structural adjustment strategy being pursued by The Gambia draw attention to the burden imposed on firms by the high level of interest rates but generally fail to take account of the effects of inflation, much less the implications of the depreciation of the currency for the rate of return on Gambian relative to foreign financial assets. However, calls for the re-introduction of credit on concessional terms for targeted sectors of the economy have been resisted in order to observe conditions attached by foreign agencies to loans and grants.

Figure 1: Nominal Interest Rates in The Gambia

(annualized T-bill rate)

Data source: Central Bank of The Gambia

---

$^3$The consumer price index has been used as the measure of inflation in The Gambia. This index measures the cost of living for low-income households in the urban areas of the country, and is far from ideal for present purposes, but no alternative is available. The volatility of the real rate of interest reflects the fluctuations in the quarterly rate of inflation.
Figure 2: Real Interest Rates in The Gambia
(annualized T-bill rate deflated by consumer price index)

Data source: Central Bank of The Gambia

The domestic savings ratio rose from -4 percent of GDP in 1983/84-1984/85 to +7 percent in the second half of the 1980s. This increase was due to the reduction in the fiscal deficit (exclusive of foreign grants), rather than an increase in private sector savings. Furthermore, gross investment is estimated to have risen from 15.8 percent of GDP in 1985/86 to 22 percent in 1989/90. Since public sector investment declined sharply relative to GDP during this period, this increase is attributable to the growth of private sector investment, which is estimated to have increased from 5.5 percent of GDP in 1985/86 to 12.4 percent of GDP in 1989/90. Thus the restoration of positive real interest rates did not stifle private sector capital formation.

4. International Parity Conditions and Excess Returns

Interest rates in a small open economy with capital flows should be strongly influenced by those in the rest of the world. According to the standard uncovered interest parity (UIP) model
\[ r = r' + \Delta s' \]  
where \( r \) = the nominal interest rate 
\( s' \) = the expected rate of change in the exchange rate (expressed as the domestic price of a unit of foreign currency) 
\* refers to the Rest of the World 
and all variables are in logarithms.

Among the applications of this model is the concept of "excess" returns, \( \lambda \), defined as 
\[ \lambda = r - r' - \Delta s \]  
This is a measure of the extent to which interest rate differentials over-compensate for \textit{ex post} changes in exchange rates, giving rise to an excess return on domestic relative to foreign assets when the returns are compared in a common currency. Assuming rational expectations, risk neutrality and the absence of borrowing constraints, the expected value of \( \lambda \) is zero and profits from speculating on the currency will be eliminated by arbitrage. These are heroic assumptions, however, and have not generally been supported by the evidence for the major industrial countries. Negative excess returns on dollar assets relative to most European currencies have persisted since the mid-1980s, while in many developing economies fixed exchange rates have given rise to expectations of large devaluations and resulted in a premium on domestic interest rates relative to the observed, intra-sample, movement in exchange rates, which is the essence of the peso problem.

An implication of UIP is that interest rate differentials correspond to anticipated changes in the exchange rate*:
\[ \Delta s' = (r - r') \]  
However, the available empirical tests, almost all of them using data for industrialized countries, strongly reject the hypothesis that interest rate differentials are optimal predictors of exchange rate movements (see MacDonald and Taylor, 1992). This is usually interpreted as indicating the presence of a time-varying risk

---

*This is equivalent to the condition that the forward foreign exchange should be an unbiased predictor of the future spot rate. There is no forward market in the Gambian dalasi.
premium, which is not readily accounted for in terms of observable variables. The Gambia is an extremely small economy, with a very thin financial market and there is a lack of international awareness of economic conditions in the country. Despite the absence of formal controls on foreign exchange transactions, capital mobility is far from perfect. While capital flight is an ever-present threat, a capital inflow is likely to be slow to materialise even when comparative rates of returns would warrant it. Under these conditions significant departures from UIP would be not surprising.

Figure 3: Excess Returns on Gambian relative to UK T-Bills
Annualized rates per quarter

Data sources: Central Bank of The Gambia and IMF International Financial Statistics

In view of the close links between Britain and The Gambia, it is logical to compare returns on Gambian assets with those on comparable UK assets. Figure 3 displays the excess return on Gambian relative to UK treasury bills on a quarterly basis for the period 1986:3 to 1992:3. It is evident that the excess returns on Gambian T-bills have been small.

For the period as a whole the average excess return was only 0.8 per cent per quarter (annualized) and there is no significant trend in the series. This is reflected in the cumulative excess returns, shown in Figure 4.

---

3 Data in International Financial Statistics show deposits of $120 million held by Gambian non-bank depositors outside the country in 1990. This is equivalent to about 50 per cent of GDP.
which averaged only 0.6 per cent per annum over the whole period. That is, an investor holding Gambian T-bills from mid-1986 to mid-1992 would have been only 3.9 per cent better off than if she had held UK Treasury bills over the same period and all of this gain was due to the sharp depreciation of sterling in the second half of 1992. The Gambia cannot be said to have experienced a peso problem following the floating of the exchange rate. There was considerable volatility in the annualized excess returns, however, with a range from +47.1 to -18.3 per cent and a standard deviation of 13.7 per cent. This volatility is primarily due to movements in exchange rates rather than in interest rates, in keeping with the well-documented comparative stability of interest rates relative to (floating) exchange rates.

Figure 4: Excess Returns on Gambian relative to UK T-Bills Cumulative

Data sources: Central Bank of The Gambia and IMF International Financial Statistics

There is a positive association between the Gambia-UK interest rate differential and excess returns on Gambian assets, as may be seen from the following result:
EXCESS = -0.0375 + 2.2356(r - r*) \quad R^2 = 0.17
\quad (2.12) \quad (2.24)

D. W. = 2.15 \quad S.e.e. = 0.030
\quad (t\text{-ratios in parentheses})

but it is evident from the low $R^2$ and large standard error of the estimate that most of the variance in the excess returns is due to other factors. It might be expected that excess returns would diminish as the length of time the country had adhered to a floating exchange rate increased. This hypothesis was tested by adding a trend variable to the equation, but it was not significant. It is difficult to obtain suitable measures on a quarterly basis of other variables - such as the size of the fiscal deficit - that might account for the behaviour of excess returns in The Gambia.

The comparison with UK Treasury Bill rates may underestimate the level of excess returns in The Gambia. Few investors in The Gambia, other than the banks, are likely to consider buying these securities. A more relevant comparison might be between Gambian and UK bank deposit rates. During 1989 and 1990 the gap between UK deposit and Treasury bill rates was unusually large: the domestic deposit rate did not rise above 6.5 percent when the Treasury bill rate climbed to over 15 percent. However offshore sterling deposits attracted rates in excess of 11 percent. This illustrates the difficulty of identifying the appropriate rates to use in international comparisons of rates of return. Moreover, if US, rather than UK, T-bills had been used in the calculations, a much higher excess return on Gambian assets would have been derived. This is a reflection of the persistent overprediction of the value of the dollar relative to the pound in the forward market during the second half of the 1980s, following its underprediction earlier in the decade. This has been attributed to switching from a "depreciating" to an "appreciating" regime (Kaminsky, 1993). To adopt this terminology, the Gambian data do not display evidence of regime switching.

Interest rate differentials have not generally been found to be good predictors of movements in the exchange rates, and this holds true for The Gambia. When changes in the exchange rate were regressed on interest rate differentials, virtually no correlation was found, as may be seen from the following result:
$\Delta s_t = 0.033 - 0.035 (r - r^*)$, \hspace{1cm} R^2 = 0.02 \\
(2.05) \hspace{1cm} (1.180) \\
D.W. = 2.10 \hspace{1cm} S.e.e. = 0.0305 \\
(t\text{-ratios in parentheses}).$

The inclusion of trend and lagged values of the interest rate differential resulted in no improvement in this result. Thus we can conclude that the unanticipated component dominated actual movements in exchange rates and there were no unexploited opportunities to make systematic profits in the foreign exchange market.

5. Conclusion.

Since 1986 interest rates in The Gambia, although high in both nominal and real terms and by historical standards, were not excessively so, especially when account is taken of the level of rates in the UK, with which The Gambia has close financial links, and the depreciation of the dalasi relative to sterling. It is encouraging for those who believe in the merits of flexible exchange rates, even for small developing countries, to see that a high risk premium has not been associated with Gambian financial assets, despite the thinness of the country’s financial markets and the generally unfavourable perception of the environment for investment in sub-Saharan African countries. Broader economic indicators, including the behaviour of private sector savings and investment, point to the beneficial effects of establishing market-determined exchange and interest rates even when the initial conditions were extremely difficult. Undoubtedly this outcome was a dividend from the generally responsible fiscal and monetary policies pursued by the Gambian authorities over the period.
REFERENCES


