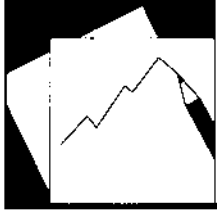


# Working Paper

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INTERNATIONAL MONETARY FUND



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## The Choice of Monetary and Exchange Rate Arrangements for a Small, Open, Low-Income Economy: The Case of São Tomé and Príncipe

*Jian-Ye Wang, Marcio Ronci, Nisreen Farhan,  
Misa Takebe, and Amar Shanghavi*

**IMF WORKING PAPER**

African Department

**The Choice of Monetary and Exchange Rate Arrangements for a Small, Open,  
Low-Income Economy: The Case of São Tomé and Príncipe**

**Prepared by: Jian-Ye Wang, Marcio Ronci,  
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Authorized for distribution by Jean A. P. Clément

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**Abstract**

**This Working Paper should not be reported as representing the views of the IMF.**

The views expressed in this Working Paper are those of the authors and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

This paper assesses São Tomé and Príncipe's monetary and exchange rate arrangements in light of the country's monetary history and the relevant experience of comparable countries in Africa. The study highlights several structural characteristics of São Tomé and Príncipe including its very small size, high degree of openness, extensive use of foreign currencies, and inflexible product and factor markets in the consideration of an appropriate monetary and exchange regime. Firmly anchored currency arrangements, defined in this paper to include memberships in monetary unions or hard pegs, are found to be preferable to the status quo of a managed float. The paper applies statistical methods and takes into account other factors to identify the appropriate anchor currency. It stresses that fiscal discipline and prudent debt management are the main prerequisites for a firmly anchored currency arrangement.

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Keywords: Monetary and exchange rate arrangements, small economy, open economy, nominal anchor, peg, currency union.

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**ABBREVIATIONS AND ACRONYMS**

AfDB	African Development Bank
BEAC	Banque des États de l’Afrique Centrale
BCEAO	Banque Centrale des États de l’Afrique de l’Ouest
BCSTP	Central Bank of São Tomé and Príncipe
BCV	Banco de Cabo Verde
CAEMC	Central Africa Economic and Monetary Union
CFA	Communauté Financière Africaine
CMA	Common Monetary Area
CPI	Consumer price index
CVE	Cape Verde escudo
ECB	European Central Bank
EU	European Union
FDI	Foreign direct investment
GDP	Gross domestic product
GNI	Gross national income
IMF	International Monetary Fund
REER	Real effective exchange rate
PPP	Purchasing power parity
SADC	Southern African Development Community
VAT	Value-added tax
WAEMU	West Africa Economic and Monetary Union
WTO	World Trade Organization

## I. INTRODUCTION

1. **The authorities of São Tomé and Príncipe have recently expressed interest in reassessing the country's monetary and exchange rate arrangements.** With a population of about 150,000, São Tomé and Príncipe is a small, open, low-income economy. It has had its own currency, the dobra, since shortly after it gained independence in 1975.<sup>2</sup> Over the past three decades the dobra has depreciated against the U.S. dollar from about Db25 to over Db14,000. As of December 2007, the IMF classified São Tomé and Príncipe's exchange rate regime as a managed float with no pre-announced path for the exchange rate.

2. **The choice of monetary and exchange arrangements is an important policy issue for many small African countries.** For these countries, keeping prices stable is a challenge that demands not only fiscal discipline but also a nominal anchor, strong institutions, and policy credibility. When they are also highly open, reducing the cost of international transactions is very important for achieving sustainable private sector-led growth. For these countries the tides of globalization and regional integration have pushed the choice of monetary and exchange rate arrangements to the forefront of the policy agenda.

3. **Financial and monetary integration and initiatives to reduce barriers to trade and labor mobility have been discussed by many African governments in various contexts.** The West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Community (CEMAC) are considering the eventual creation of a single currency area.<sup>3</sup> The Southern African Development Community (SADC), which includes countries in the Common Monetary Area (CMA), intends to establish a common currency by 2018. Recently, the African Union has been discussing a single African currency. As of end-2006, there are 29 countries in Sub-Saharan Africa (SSA)<sup>4</sup> that are not members of the CEMAC, WAEMU, or CMA, and ten countries in SSA had GDP below US\$1.5 billion in 2006; São Tomé and Príncipe is one of them.<sup>5</sup>

4. **This paper provides an economic analysis of the advantages and disadvantages of maintaining the current monetary and exchange rate arrangements in São Tomé and Príncipe compared to the effects of shifting to a system firmly anchored to a hard currency.** There is a wide spectrum of monetary and exchange rate arrangements in the world (Box 1). For this paper, firmly anchored currency arrangements include memberships in monetary unions and hard pegs. Instead of revisiting the fixed vs. floating rate debate, this

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<sup>2</sup> In 1977, the dobra replaced at par the São Tomé and Príncipe escudo, which had been introduced earlier at par with the Portuguese escudo.

<sup>3</sup> The CFA zone comprises 14 African countries.

<sup>4</sup> Excluding Sudan.

<sup>5</sup> The countries are Burundi, Cape Verde, Central African Republic, Comoros, Eritrea, the Gambia, Guinea-Bissau, Seychelles, Sierra Leone, and São Tomé and Príncipe.

paper is an empirical study of whether a small, open, low-income economy could benefit from a firmly anchored currency arrangement and the conditions under which such an arrangement is desirable and feasible, notwithstanding the limited international reserves and vulnerability to shocks typical of these countries. It should be noted that the choice of monetary and exchange rate arrangements depend not only on economic factors but also on historical, political, and geographic considerations, and hence is ultimately a sovereign decision.

5. **The paper is organized as follows:** Section II describes economic characteristics of São Tomé and Príncipe that are relevant to its choice of monetary and exchange arrangements and briefly reviews the country's monetary history to provide context for the choices it faces today. Section III analyzes the benefits and costs of alternative monetary and exchange rate regimes, drawing heavily on comparisons with countries in Africa. The intention is to help determine whether there is a case for changing from São Tomé and Príncipe's current managed float regime to a system with a foreign currency anchor. Section IV uses the evidence that favors a change in the status quo to study the appropriateness of either shifting to a hard currency peg or joining a monetary union that is linked to a hard currency, and conditions under which such a regime change is sustainable. The final section summarizes the key findings of this paper.

## **II. SÃO TOMÉ AND PRÍNCIPE—CURRENT MONETARY AND EXCHANGE RATE ARRANGEMENTS**

### **A. Economic Structure, Capital Flows, and Trade Pattern**

6. **São Tomé and Príncipe has a very narrow production and export base.** Cocoa is the main export commodity but cocoa production and exports have been stagnant, if not shrinking, for three decades. There has been little progress in diversifying exports. Cocoa exports were less than US\$3 million (2 percent of GDP) a year in 2005–06. Tourism is relatively small and brings in little net foreign exchange receipts to the country because of its heavy reliance on imported goods and services. The country is located in the Gulf of Guinea, where exploratory drilling has not yet confirmed that petroleum reserves are commercially extractable. Aside from subsistence fishing and farming, the rest of the economy is dominated by nontradable activities, such as the government, construction, and other services.

7. **The economy is highly open; imports of goods and nonfactor services average 70 percent of GDP.** Exports of goods and services were about 20 percent of GDP in 2005–06. Most consumer goods, including some agricultural products, are imported. São Tomé and Príncipe depends entirely on imported oil for domestic consumption. Its persistent large imbalances between exports and imports are financed mainly by capital inflows, which consist of official transfers, external borrowing, and private sector inflows. The latter includes, in recent years, large oil signature bonuses.



### Box 1. Monetary and Exchange Regimes

**A monetary regime is a system of expectations governing the behavior of the public and a consistent pattern of behavior on the part of monetary authorities to sustain these expectations** (Leijonhufvud, 2000). Although sound fiscal policy is a necessary condition for a stable monetary regime, the institutional arrangement of the regime also matters (see the matrix below).

**Depending on the monetary regime adopted, there is a wide variety of exchange rate options:** a free float, with the exchange rate determined solely by the market; a managed float, with no announced exchange rate target but with central bank intervention in the market as needed to change official reserves; a band, basket, or crawl, with an announced peg that can be adjusted using different mechanisms and/or rules; a target zone, with a fixed central parity and no intervention within the pre-specified bands; a fixed but adjustable peg (hard peg); a currency board; dollarization or euro-ization; and membership in a monetary union.

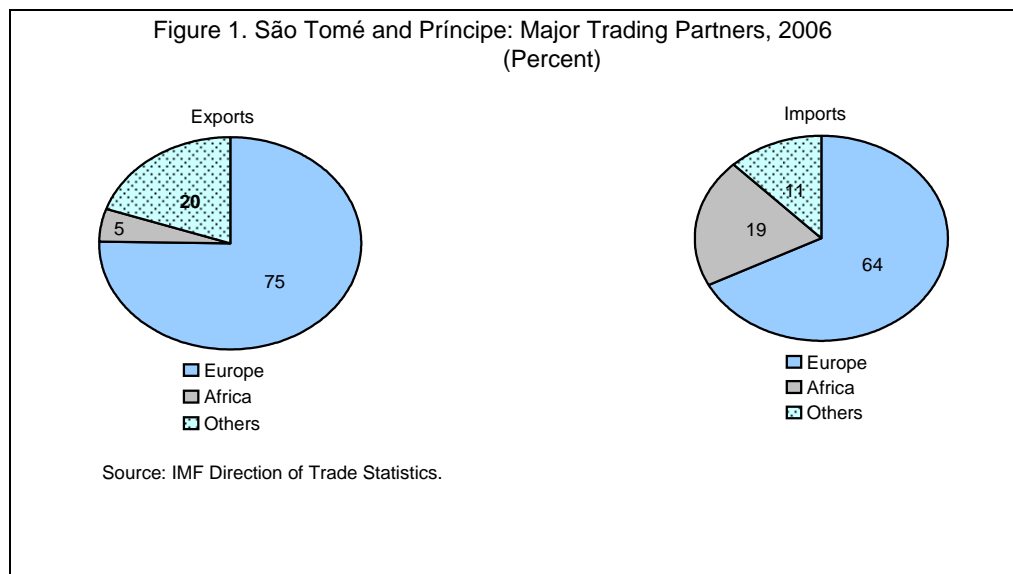
**The choice of monetary and exchange rate arrangements depends on a variety of economic, political, and geographic considerations.** Relevant economic characteristics include the structure of the economy and trade patterns; the degree of openness, including openness to international capital mobility; vulnerability to external shocks; the extent and speed of exchange rate pass-through; how well business cycles are synchronized with those of major trade partners; and the capacity of the government and monetary authorities to implement policy. Because there are important tradeoffs, an appropriate monetary and exchange rate institutional framework has to be chosen based on careful assessment of the costs and benefits of alternative regimes for a country at a given point in time.

#### Matrix of Monetary and Fiscal Regimes

	<b>Weak Monetary Regime</b> Poor institutional framework to control money issuance and unbound inflationary expectations	<b>Strong Monetary Regime</b> Strong institutional framework to effectively control money issuance and bound inflationary expectations
<b>Weak Fiscal Regime</b> High deficits and debt; lack of control of public spending	<b>Not sustainable</b> , leading to high inflation or hyperinflation	<b>Not sustainable:</b> lax fiscal discipline dominating over the long run, leading to a breakdown of the monetary regime and high inflation
<b>Strong Fiscal Regime</b> Low deficits and debt; firm control of public spending	<b>Unstable:</b> weak monetary control, possibly leading to pro-cyclical money growth, causing higher inflation and unstable growth	<b>Stable</b> fiscal and monetary regimes, leading to low and stable inflation

8. **São Tomé and Príncipe reached the completion point under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative in March 2007, thereby benefiting from debt relief under the HIPC Initiative and the Multilateral Debt Relief Initiative (MDRI).** However, the country's debt repayment capacity remains very limited. Maintaining long-term debt sustainability, particularly beyond the year 2014, which is sensitive to oil prospects, continues to be a challenge.

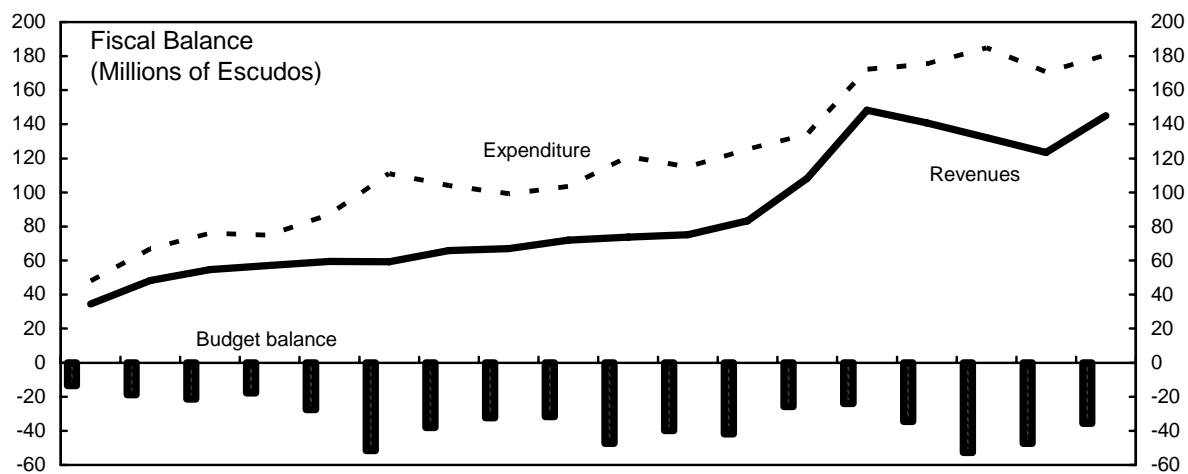
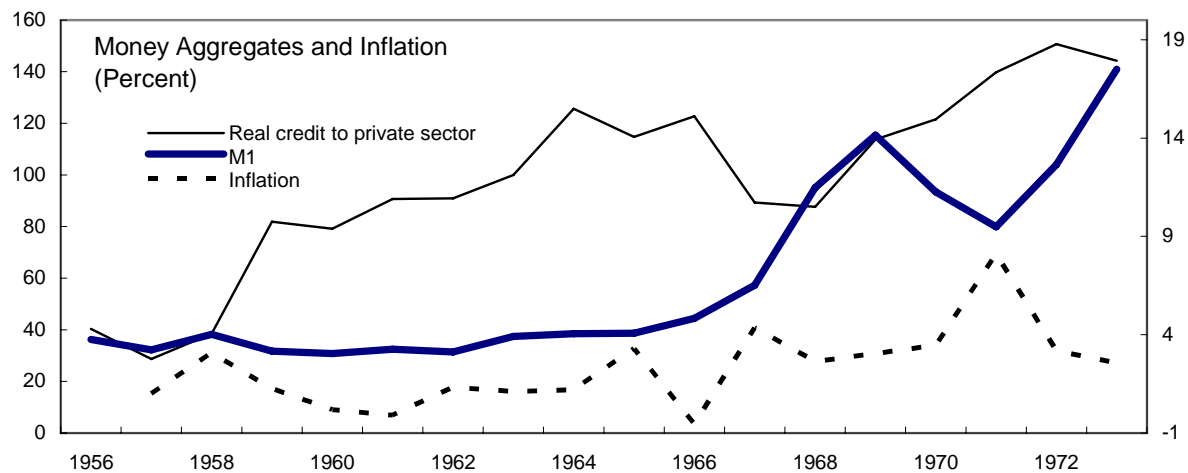
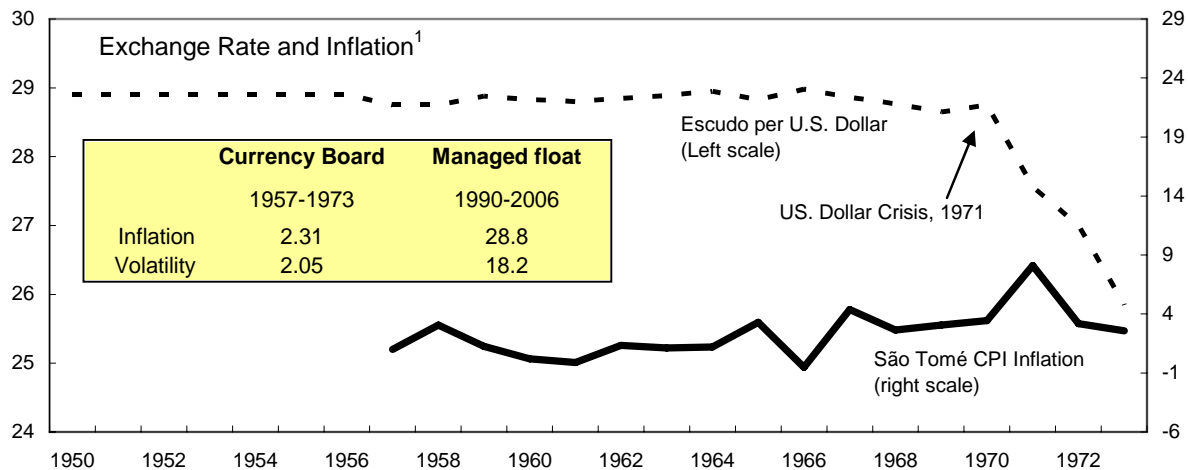
9. **Despite the country's proximity to Western and Central Africa, São Tomé and Príncipe trades predominantly with Europe, largely because of its historical links to Portugal (Figure 1).** In 2006, Europe accounted for over 75 percent of São Tomé and Príncipe's exports and close to 65 percent of its imports. Nearby Angola, which shares the same language, is the main supplier of oil to São Tomé and Príncipe, where in recent years oil has accounted for about 15 percent of total imports. Angola has also provided oil-related trade financing to São Tomé and Príncipe and, with the government of São Tomé and Príncipe, owns the only oil importer and retailer in the country.



### B. The Monetary History of São Tomé and Príncipe

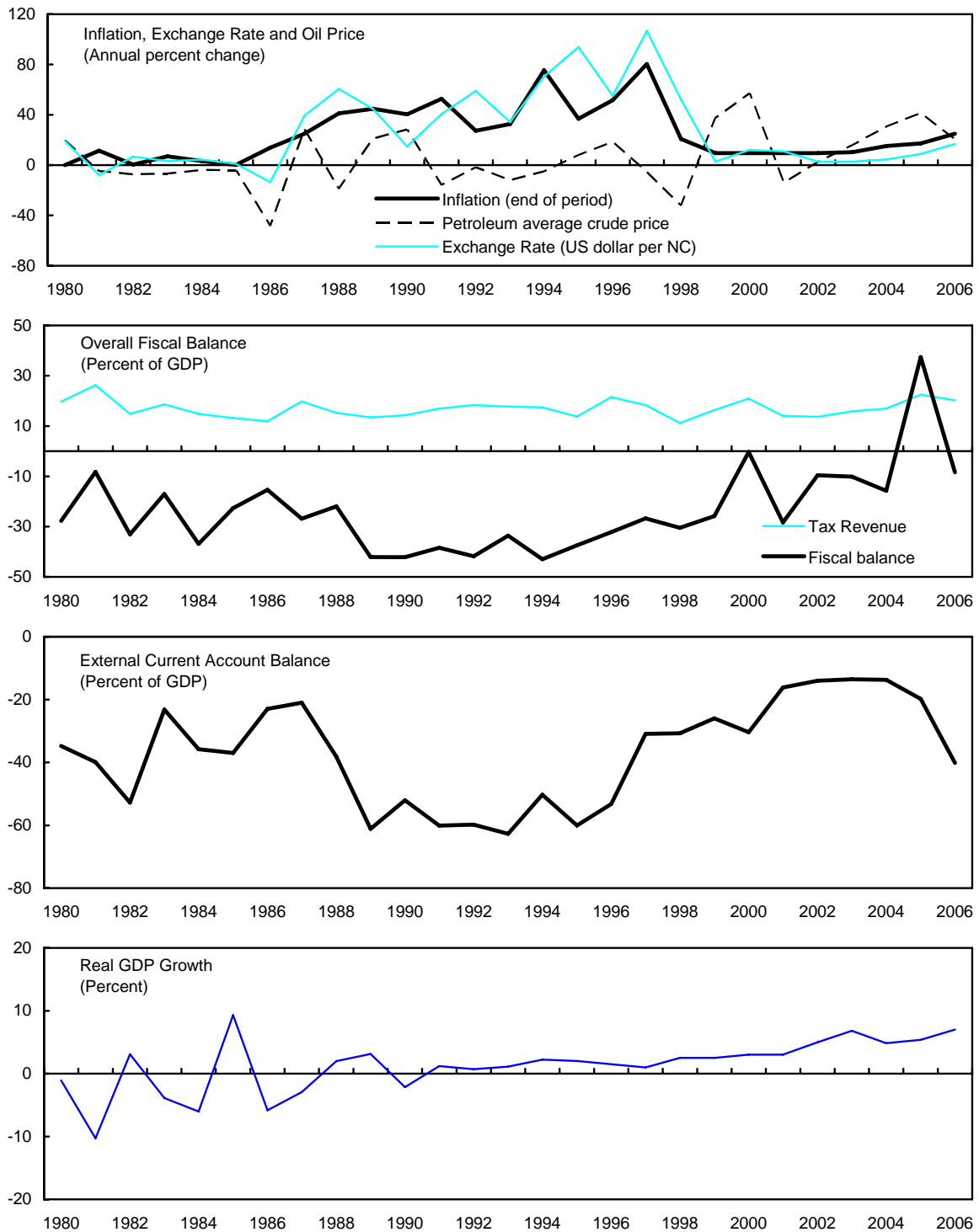
10. **São Tomé and Príncipe was in a de facto currency zone for about 450 years before independence** (Appendix I). For much of the time the country used the Portuguese currency as its national currency (1522–1867); then it was under a currency board system (1868–1952), with the currency issued by Banco Nacional Ultramarino, a private monopoly note issuer authorized by the Portuguese government. It then adopted a revamped currency board regime (1953–1975). During the two decades through 1975, fiscal deficits were contained, and money supply was kept virtually constant for quite some time, despite increases in credit to the private sector. Inflation was low, averaging about 2 percent a year during the period (Figure 2).

Figure 2. São Tomé and Príncipe: Macroeconomic Economic Indicators, 1950-73



Source: Anuario Estatístico, Instituto Nacional de Estatística, Portugal.

<sup>1</sup> One São Tomé escudo = 1 Portugal escudo.

Figure 3. Sao Tome and Principe: Macroeconomic Indicators<sup>1</sup>, 1980–2006

Sources: International Financial Statistics and World Economic Outlook.

<sup>1</sup>There is a break in GDP data in 2001 due to substantial upward revisions of GDP for 2001-06 by the authorities.

Table 1. São Tomé and Príncipe: Key Macroeconomic Indicators, 1992-2006

	1992-98	1999	2000	2001	2002	2003	2004	2005	2006
	(Annual percentage change)								
<b>Growth &amp; Inflation</b>									
Real GDP <sup>1</sup>	1.6	2.5	3.0	3.0	5.0	6.8	4.8	5.4	7.0
Consumer prices (end of period)	46.5	9.6	9.6	13.9	9.0	10.0	15.2	17.2	24.6
	(Percent of GDP)								
<b>Fiscal Balance</b>									
Domestic primary fiscal balance	-3.2	1.0	2.3	-8.2	-7.0	-6.9	-10.9	-10.3	-8.6
<b>External current account (excl. official transfers)</b>	-49.7	-26.0	-30.4	-16.2	-14.0	-13.5	-13.7	-19.8	-40.1
	(Millions of US dollars)								
<b>Trade</b>									
Exports	5.2	3.9	2.7	3.3	5.1	6.6	3.6	3.4	3.8
Imports	21.7	21.9	25.1	26.2	28.4	33.6	36.0	41.6	70.5
<b>Capital Inflows</b>	29.4	21.2	37.9	26.3	22.7	26.9	29.0	47.2	72.6
Official transfers (net)	18.0	11.6	15.7	18.7	16.3	22.1	22.9	22.1	23.6
Public sector borrowing	11.5	9.6	0.0	4.9	2.0	1.9	3.9	1.3	4.4
Private inflows (net)	...	...	22.2	2.7	4.5	2.9	2.2	23.8	44.7
Sources: National authorities and staff estimates.									
<sup>1</sup> There is a break in GDP data in 2001 due to substantial upward revisions of GDP for 2001-06 by the authorities.									

11. **In 1977, two years after independence, the newly-established Central Bank of São Tomé and Príncipe (BCSTP) introduced the country's new national currency, the dobra.** The dobra was initially pegged to the Portuguese escudo at par, then to the SDR. The exchange rate arrangement has since been modified several times (Figure 3):

- The spread between the official and parallel exchange rates widened from over 100 percent in 1984 to 400 percent in 1986. Consequently, in 1987 the peg to the SDR was abandoned. After a 56 percent devaluation, the dobra was re-pegged to a basket of the currencies of nine trading partners.
- A crawling peg was introduced in 1991, ushering in a period of continued depreciation of about 20 percent a year.
- By 1994, the authorities stopped using the currency basket in setting the official exchange rate. The dobra moved to a de jure managed floating regime.

12. **In 2004, the country started foreign exchange auctions.** As of 2007, the BCSTP adjusts its exchange rate daily; it is calculated as the sum of 40 percent of the previous day's selling rate quoted by commercial banks for transactions with the public and 60 percent of the central bank's own previous day selling rate.

13. **The first two decades of the dobra era (1977–1998) witnessed widening fiscal and external current account deficits and escalating inflation** (Table 1). Real GDP growth was low throughout the period. After peaking at an annual rate of 80 percent in 1998, inflation was brought down to 10 percent a year for 1999–2003. This dramatic disinflation owed much to a sharp reduction in the fiscal and external current account deficits, which in turn was due to a large inflow of resources, including official transfers, external borrowing, and payment by an oil company for exploration rights.

14. **After 2003, inflation proved tough to reduce.** As fiscal imbalances increased in 2004–05, the deficits were mainly financed by external borrowing, accumulation of payment arrears, and central bank credits, which fueled pressures on domestic prices. Price data for recent years also suggest that, although São Tomé and Príncipe is vulnerable to external shocks, inflation in the last few years was primarily driven by the country’s financial policies. By August 2006, inflation had risen to 26 percent year-on-year. As part of the economic adjustment and reform program supported by the IMF, the authorities took steps to stabilize the economy; by June 2007 inflation had been reduced to 14 percent.

15. **Chronic inflation and currency depreciation over the last 30 years have led to a high degree of currency substitution in São Tomé and Príncipe.**<sup>6</sup> Foreign currency deposits have been on the rise, amounting to over 60 percent of broad money by mid-2007. Commercial banks operate largely with foreign currency; in fact, foreign currency credits account for 70–75 percent of total bank lending. Together with the high import propensity of spending, this means that exchange rate movements rapidly pass through to domestic prices—data for 2006 suggest that exchange rate depreciation led inflation by about two months.

### C. Money, the Exchange Rate, and Inflation: Econometric Evidence

16. **The stark contrast between inflation before and after the dobra was introduced, while pointing to the critical importance of fiscal policy and external financing, raises a number of questions about the monetary and exchange rate regimes.** Specifically: What are the dynamics between money, the exchange rate, and inflation in São Tomé and Príncipe? Is there any causal relationship between currency depreciation and consumer price inflation? Is causality statistically robust? What is the impact of currency substitution on the effectiveness of monetary policy? Kuijs (2000) investigates these issues using monthly data from January 1992 to May 1998. Iimi (2006) extends the analysis using monthly data from January 1998 to September 2005. An updated study using more recent data confirmed the earlier findings (Box 2).

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<sup>6</sup> In the period between December 1999 and July 2007, the disparity between inflation rates in the U.S. and São Tomé and Príncipe had a statistically significant impact on the share of foreign currency deposits in total deposits.

### Box 2. São Tomé and Príncipe: Empirical Studies on Money, the Exchange Rate, Inflation, and Currency Substitution

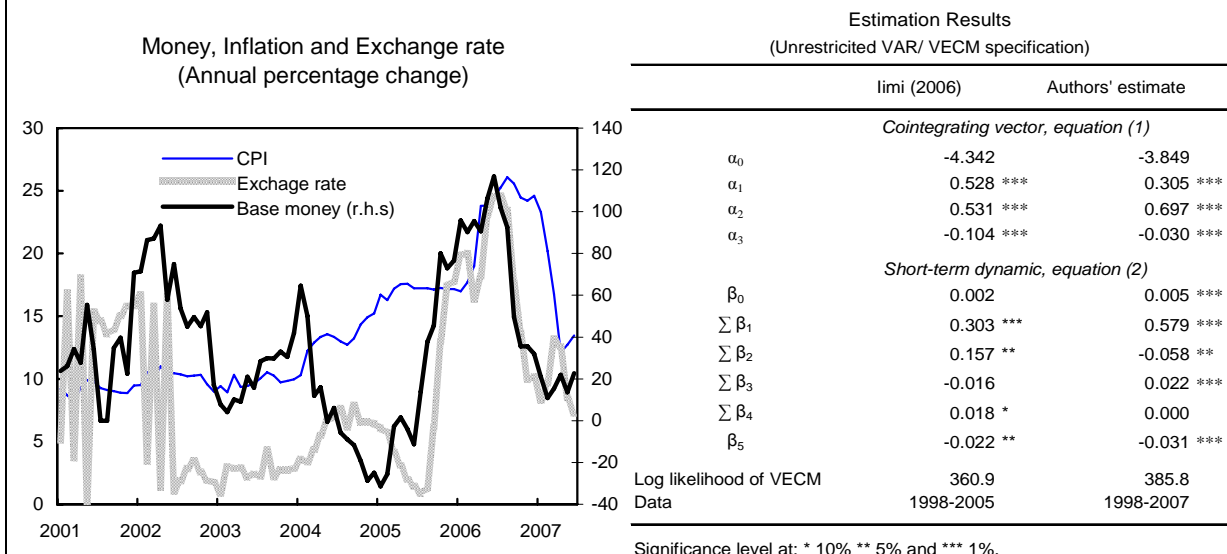
To investigate the relationship between monetary aggregates, the exchange rate, and inflation in an economy characterized by susceptibility to shocks, considerable currency substitution, and fast pass-through of exchange rate movements to domestic prices, Kuijs (2000) estimated a money demand equation and dynamic equations for both the price level and the exchange rate using monthly data from January 1992 to May 1998. The study shows that the ability of the monetary authorities to affect real dobra-denominated monetary aggregates is limited by the sensitivity of prices and foreign currency holdings to dobras money supply. In particular, accelerated money supply leads to sharp exchange rate depreciation and an increase in the ratio of foreign currency deposits to broad money and the relationships are statistically robust.

Iimi (2006) extends the analysis, estimating the following vector error-correction (VEC) model based on monthly data from January 1998 to September 2005. The analysis was updated using data available through January 2007.

$$ECM_t = \ln CPI_t - \alpha_0 - \alpha_1 \ln M3_t - \alpha_2 \ln ER_t - \alpha_3 \ln RGDP_t \quad (1)$$

$$\Delta \ln CPI = \beta_0 + \beta_1 \sum_{i=1}^k \Delta \ln CPI_{t-k} + \beta_2 \sum_{i=1}^k \Delta \ln M3_{t-k} + \beta_3 \sum_{i=1}^k \Delta \ln ER_{t-k} + \beta_4 \sum_{i=1}^k \Delta \ln RGDP_{t-k} + \beta_5 ECM_{t-1} + \varepsilon_t \quad (2)$$

where  $\Delta \ln X$  is the first difference in logs of the variable  $X$ ;  $CPI$ ,  $M3$ ,  $ER$ , and  $RGDP$  stand for price level, broad money, the exchange rate, and real income respectively. Equation (i) captures adjustment in the money market; In the dynamic equation (2),  $\beta_5$  is an error correction coefficient. The results suggest that in long-run equilibrium, inflation increases with both an increase in the money supply and a depreciation of the exchange rate and decreases with real GDP growth. A restricted VEC model (reducing the number of explanatory variables) confirms that inflation is largely explained by depreciation of the exchange rate. Applying the Granger-causality tests to the restricted VEC model, the studies find that exchange rate depreciation Granger-causes inflation, and vice versa.



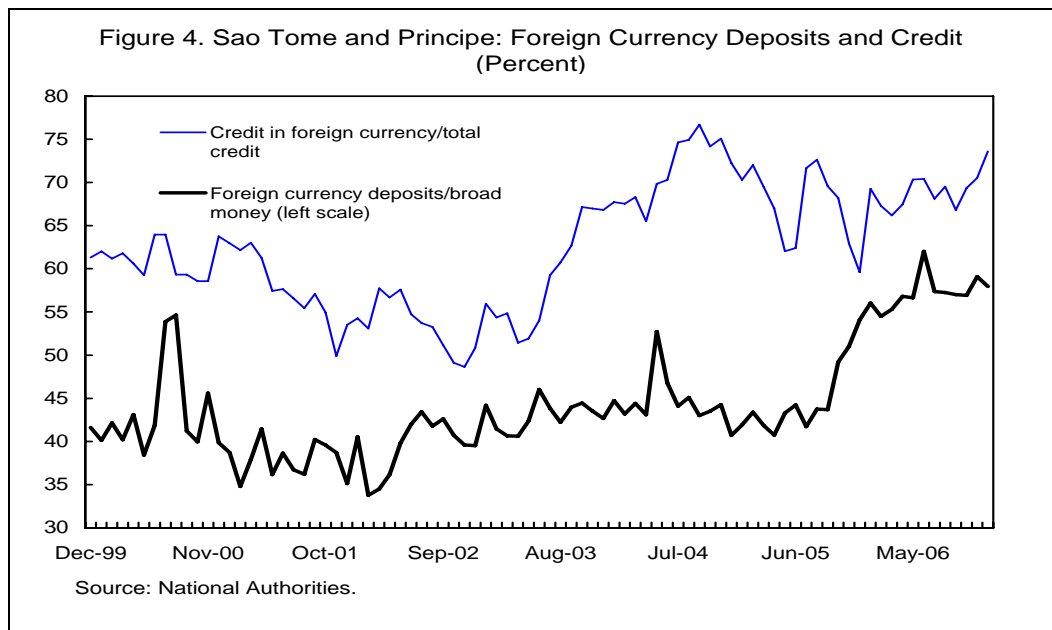
17. **Econometric studies covering 1992–2007 have yielded the following insights:**

There is a reasonable long-run relationship between prices, monetary aggregates, the exchange rate, and developments in the real economy in São Tomé and Príncipe. Over the long run, both money supply and changes in the exchange rate affect inflation.

- Exchange rate depreciation immediately affects inflation. Exchange rate movements have an important effect on consumer prices, reflecting the large share of imported products in the household consumption basket. The causality is two-way and statistically robust.
- There is substantial inflation inertia in São Tomé and Príncipe. Lagged inflation explains a relatively large part of current inflation.
- A high degree of euro-ization and substitution between dobra-denominated and dollar- or euro-denominated assets severely limits the effectiveness of monetary policy. A rapid monetary expansion is associated with a fall in the real demand for dobras, causing a sharp depreciation of the exchange rate and an increase in the share of foreign currency deposits in broad money.

18. **The time lag between exchange rate depreciation and CPI inflation has been shortened with the increase in the share of foreign currency deposits in broad money.**

Kuijs (2000) reports that that lag was about four months in 1997-98 when the share of foreign currency deposits in broad money was below 40 percent (Figure 4). Recent data indicate that the lag shortened to about two months in 2006 with foreign currency deposits accounting for close to 60 percent of broad money.





### III. POTENTIAL BENEFITS AND COSTS OF ALTERNATIVE ARRANGEMENTS

19. **Whether an alternative monetary and exchange rate arrangement would help the São Tomé and Príncipe economy perform better is largely an empirical question, the answer to which depends heavily on a careful cost-benefit analysis.** This section therefore examines international experience, particularly in comparable countries in Africa. Three questions are particularly relevant here:

- First, is monetary policy an effective counter-cyclical instrument in a small, open, low-income economy?
- Second, if a system firmly anchored to a hard currency (whether through a hard peg or indirectly through a monetary union) is judged to be more appropriate, would a change to such a system be credible or sustainable for a country with limited foreign exchange reserves and export earnings capacity?
- Third, would the cost-benefit analysis change if the country becomes an oil producer and exporter?

#### A. Potential Benefits of Alternative Regimes

##### Price Stability

20. **A monetary union or a hard currency peg can have a noticeable effect on price stability.** In the last 15 years, consumer price inflation in African countries that are either in a monetary union or under a hard peg to a reserve currency has been relatively low (Table 2 and Figure 5). This result holds whether or not a country is an oil producer.

##### Fiscal Discipline

21. **Countries in CEMAC and WAEMU have had a lower fiscal deficit relative to GDP compared to small countries with a hard peg or a floating exchange rate.** The differences may reflect the fact that members of a monetary union are typically subject to limits on fiscal deficits and public debt. It should be noted that the evidence presented in Table 2 does not imply causality. Imprudent fiscal policy could occur under a fixed rate regime with serious consequences for the sustainability of the exchange system.

##### Trade, Foreign Direct Investment, and Growth

22. **Reducing exchange rate uncertainty can facilitate trade in goods and services.**<sup>7</sup> For example, Cape Verde, like São Tomé and Príncipe, is a small island economy relying heavily on tourism, mostly from Europe. Since pegging to the euro in 1999 and after solid improvements in policy implementation, the country's tourism income increased rapidly (Box 3). Reducing exchange rate risks may also facilitate inflows of foreign direct investment (FDI), though such a result may not be easily observed by comparing FDI levels across countries (Table 2). In addition to exchange rate risks, FDI inflows also depend on other factors such as natural resource endowment and the business and investment climate.

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<sup>7</sup> See Glick and Rose (2002), Masson and Pattillo (2004), Persson (2001), Thom and Walsh (2002), and Nitsch (2002).

### Box 3. Cape Verde: Experience with a Currency Peg to the Euro

In January 1999 Cape Verde opted to firmly peg the national currency, the escudo, to the euro. After some economic difficulties at the onset of the peg, the country achieved commendable financial stability and economic growth.

#### The economic situation before the peg

Cape Verde is a small, open economy. Its macroeconomic conditions at the time it introduced the hard peg were quite similar to present conditions in São Tomé and Príncipe: The economy was heavily dependent on remittances and foreign aid and it had virtually no exports, including tourism. In the early 1990s, merchandise imports were 27 times larger than exports and imports of goods and nonfactor services were almost four times exports. In comparison, in 2006 in São Tomé and Príncipe the ratio of merchandise imports to exports was almost 21 and the ratio of imports of goods and services to exports was over 4. Cape Verde's main trading partners were Portugal, France, and the Netherlands, which together accounted for over 80 percent of the country's total trade.

#### Measures to support the currency peg

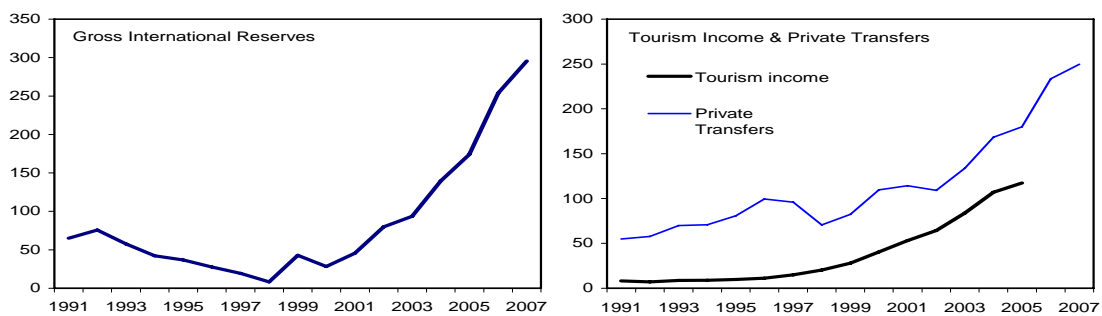
The currency peg has been supported by an agreement with Portugal that provides an institutional framework to enhance the credibility of the hard peg as well as financial support in times of crises. The agreement established a Foreign Exchange Cooperation Agreement Committee to follow up macroeconomic developments and provided a short-term precautionary credit line from the Portuguese government to Cape Verde (see Appendix II).

#### Macroeconomic performance since 1999

Immediately after pegging to the euro, the economy grew at a rapid pace, driven by foreign direct investment. However, at the same time, the fiscal situation worsened, notwithstanding the bilateral monitoring mechanism agreed with Portugal. Fiscal problems led to a depletion of foreign reserves. In response to the crisis, the government reinitiated its reform efforts and drew on the Portuguese credit line several times. The situation was normalized by late 2001.

The currency peg has since been supported by a comprehensive economic reform program. The reform changed the economic structure of Cape Verde to a more broad-based one that is less vulnerable to exogenous shocks. Inflation declined from an average of 6 percent for 1993–1998 to 2 percent in 2001–2006. Tourism income significantly increased and the Central Bank was able to build up foreign exchange reserves. As evidenced by the changes in Cape Verde's trade pattern and the geographical distribution of remittances, the country has been further integrated with the euro area under the currency peg.

Cape Verde: External Indicators, 1991–07  
(Millions of US dollars)



Source: National authorities and staff estimates.

23. Available data show that African countries in a monetary union or under a hard peg recorded about same or somewhat higher growth than small countries under other exchange arrangements on average over the period of 1990 through 2006. However, there is also evidence that floating-rate regimes boost growth.<sup>8</sup> Clearly exchange rate regime is only one of the many factors that affect economic growth and its contribution to the growth process may depend on country specific circumstances and other economic institutions and policies.

Table 2. Selected African Countries: Macroeconomic Performance and Exchange Rate Regimes, 1990-2006

	CEMAC <sup>1</sup>	CEMAC (non oil producers)	Equatorial Guinea	WAEMU <sup>2</sup>	Cape Verde	Small economies <sup>3</sup>	Small economies <sup>4</sup>	São Tomé and Príncipe
					Peg	Peg	Managed float	Managed float
(Annual averages)								
<b>Real Sector</b>								
GDP growth <sup>5</sup>	7.3	2.9	30.5	3.2	5.9	3.8	2.5	2.8
Inflation	4.7	4.1	6.4	6.6	4.8	5.6	15.7	28.8
Real exchange rate	-0.5	-0.7	1.8	-1.3	0.5	0.7	-2.5	-1.6
(Percent of GDP)								
<b>Fiscal Sector</b>								
Overall balance	-1.3	-3.1	3.4	-3.4	-9.0	-10.1	-14.9	-35.1
<b>External Sector</b>								
Current account	-8.9	-8.1	-32.4	-7.2	-8.9	-6.6	-16.2	-37.3
Financial account	10.4	4.7	36.8	0.7	6.7	6.0	13.7	32.0
Foreign Direct Investment	8.7	3.6	34.4	1.0	4.2	3.3	3.5	5.5
Official reserves (months of imports)	2.3	3.4	1.8	3.9	2.3	2.9	4.8	3.1
<b>Memorandum items</b>								
External openness <sup>6</sup>	50.3	29.6	120.3	35.6	66.4	69.8	68.9	68.6
Volatility <sup>7</sup>								
Inflation	8.1	7.5	0.0	7.2	4.3	2.1	7.6	18.2
Real Exchange Rate	9.7	10.0	0.0	5.9	4.3	5.0	9.0	15.2

Sources: World Economic Outlook, and staff calculations.

<sup>1</sup> CEMAC includes Cameroon, Central African Republic, Chad, Congo, Republic of, Equatorial Guinea and Gabon, of which oil producers are Congo, Republic of, Equatorial Guinea and Gabon.

<sup>2</sup> WAEMU includes Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo.

<sup>3</sup> Small economies is defined as countries with GDP less than US\$ 1.5 billion in 2006. These include Burundi, Cape Verde, Central African Republic, Comoros, Djibouti, Eritria, Gambia, Guinea Bissau, Seychelles and Sierra Leone, of which, Cape Verde, Comoros, Djibouti, Eritria and Seychelles are countries with a pegged exchange rate regime.

<sup>4</sup> Small economies as defined in footnote 3, of which, Burundi, Gambia and São Tomé and Príncipe are countries with a managed float exchange rate regime.

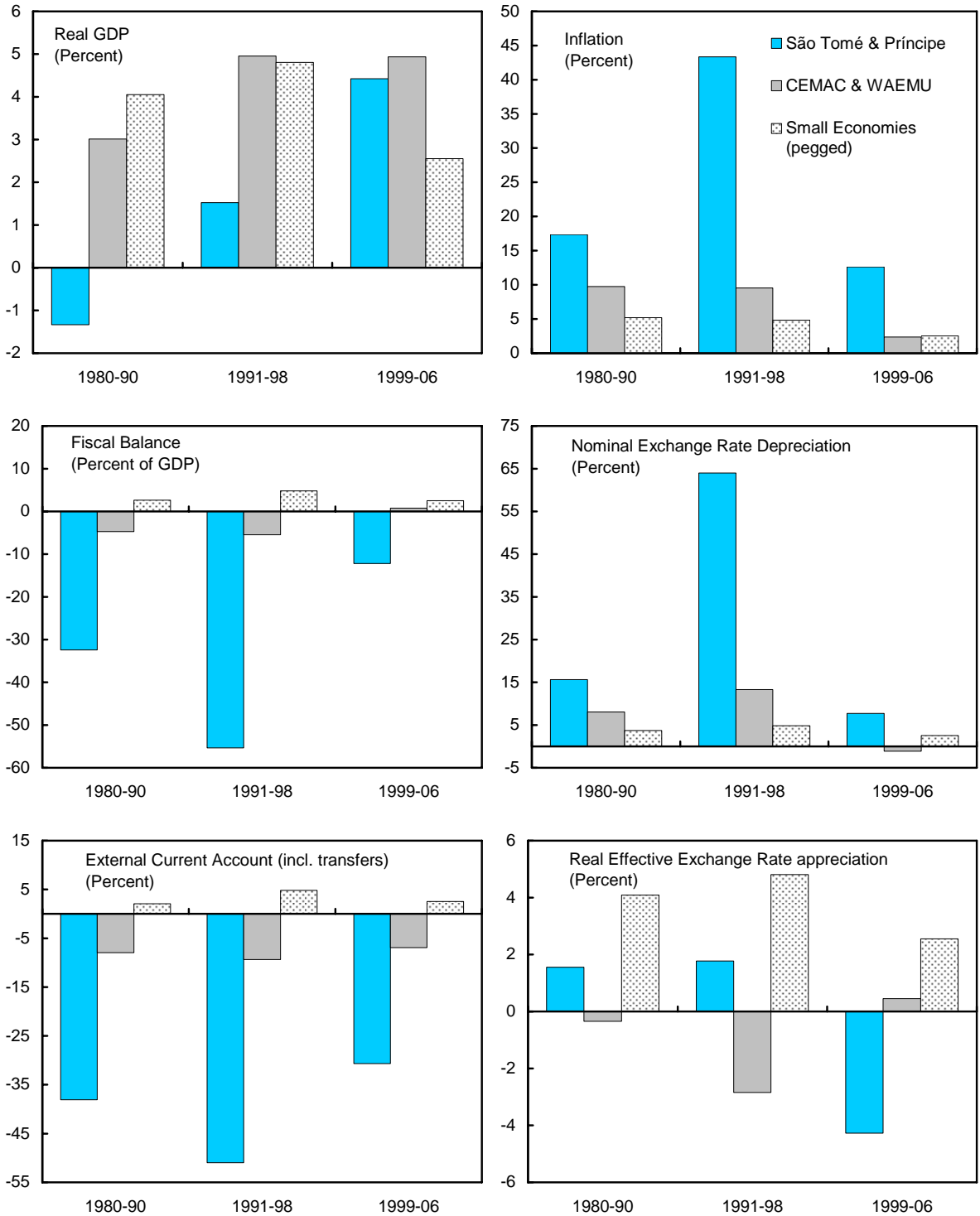
<sup>5</sup> There is a break in GDP data in 2001 due to substantial upward revisions of GDP for 2001-06 by the authorities.

<sup>6</sup> Import-to-GDP ratio, in percent.

<sup>7</sup> Standard deviation.

<sup>8</sup> Chang (2000) and Goldfajn and Olivares (2000) report that developing countries with more rigid exchange rate systems grew slower and had larger fluctuations in output.

Figure 5. Selected African Countries: Macroeconomic Indicators, 1980–2006  
(Annual Average)



Sources: National authorities and staff estimates.

## Financial Sector Surveillance and Development

24. **The experience of the Common Monetary Area (CMA) in Southern Africa shows that a common currency facilitates financial market integration, as evidenced from the structure of and pricing in the banking sector** (Wang et al., 2007). With generally lower inflation than neighboring countries, small member countries (Lesotho, Namibia and Swaziland) also benefit from the lower interest rates in the CMA. Moreover, closely aligned banking supervision standards and prudential requirements lead to relatively uniform banking sector financial soundness indicators in all CMA countries.<sup>9</sup> Experience in the WAEMU also points to progress in financial integration, where cross-border transactions of government securities have rapidly increased and interest rate spreads across member countries have narrowed (Sy, 2006).

### B. Potential Costs

#### Loss of Monetary Policy Independence

25. **By joining a monetary union or adopting a hard peg, a country gives up autonomy in conducting its own monetary and exchange rate policies.** São Tomé and Príncipe, like other small, low-income countries, is vulnerable to external shocks. However, losing the ability to use monetary and exchange rate policies to facilitate adjustment to shocks may not be a significant cost in the case of Sao Tome and Principe for several reasons:

- There is strong statistical evidence that with persistent, extensive euro-ization, the monetary authority's ability to affect real and monetary aggregates is limited. Exchange rate depreciation and inflation react to monetary expansion with a very short time lag (see Section II.C). Foreign currencies play the role of store of value. Banks do not really intermediate local currency saving and investment.
- With a very narrow production and export base and inflexible product and factor markets, a large depreciation of the real exchange has had limited impact on resource allocation between tradable and non-tradable sectors. In fact, cocoa and other agricultural output and exports have been stagnant despite large cumulative real depreciation of the exchange rate since early 1990s.
- The operating expenses of an agency that is needed to administer a national currency and an independent monetary policy could be high relative to GDP in a very small, poor country (Kuijs, 2000). In addition, financial institutions need to devote substantial resources to exchange rate-related activities, at the expense of credit intermediation.

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<sup>9</sup> Financial sector development is not uniform across CMA countries, influenced by country specific factors. Small member countries also have to rely heavily on fiscal and structural policies to regain external competitiveness when they are facing exogenous shocks.

### Loss of Seigniorage

26. **Depending on the sharing arrangements, joining a monetary union will lead to the loss of seigniorage.** However, in an economy with a high degree of currency substitution, the loss of seigniorage may be very small. Indeed, a country that is already highly dollarized may gain by joining a monetary union if transfers under the union's sharing arrangement are larger than the seigniorage under the alternative monetary and exchange rate arrangement.

### C. The Cost-Benefit Analysis and Initial Conditions

27. **For small, open, low-income economies in Africa, the evidence already reviewed favors a monetary and exchange system that is firmly anchored to a hard currency.** Such a system, whether it is a monetary union or a hard peg, provides an anchor for inflation and, by reducing transaction costs and exchange risks, is also likely to promote growth. However, would poor initial conditions, including limited official reserves and weak capacity to generate foreign exchange earnings, change the cost-benefit analysis? Put differently, would a firmly anchored currency arrangement remain credible and sustainable if initial conditions were poor?

28. **The experience of Cape Verde suggests that a firmly anchored currency arrangement can be successful if it is accompanied by strong internal policy reforms and adequate external support.** Cape Verde suffered from structural imbalances, lack of foreign earning capacity, and low official reserves when it started pegging the national currency to the euro in 1999. Inconsistent domestic policies in the subsequent two years led to a rapid deterioration of the balance of payments. Fiscal reform, current and capital account liberalization, and reform of state-owned enterprises since 2001 were crucial to sustain the peg. The Exchange Cooperation Accord with Portugal was also instrumental in the success of the peg because it not only provides for a short-term precautionary credit line but also strong surveillance to ensure continued fiscal discipline (Box 3 and Appendix II).

### D. The Effects of Large Oil Exports on the Cost-Benefit Analysis

29. **Becoming an oil producer and exporter could change a country's economic circumstances and affect the cost-benefit analysis of adopting a firmly anchored currency arrangement** (Appendix III). There are two key issues: (i) the effectiveness of a flexible exchange rate as a "shock absorber", and (ii) the rate of return on the country's foreign assets. Large oil exports will have an impact on the structure of the economy and the appropriate macroeconomic policy mix, including the exchange rate. In particular, fluctuations in oil prices could have a much larger impact on national income than changes in cocoa prices, given the potential size of the oil sector relative to the rest of the economy. As a

flexible exchange rate may help address the volatilities in oil revenues, the cost of losing a flexible exchange rate could be high.<sup>10</sup>

30. **The choice of the monetary and exchange rate arrangements under an oil production scenario will depend on the country's ability to use fiscal and structural policies to address terms-of-trade shocks.** Sound and sustainable fiscal policies could help buttress a firmly anchored currency arrangement and reduce the cost of losing a flexible exchange rate as a shock absorber. Structural reforms can enhance competitiveness and hence the economy's resilience to external shocks.

31. **If São Tomé and Príncipe decides to join a currency union, it will have to consider the impact of the union's rules regarding foreign currency assets.** As a member of a monetary union, a country must abide by the rules on pooling reserves. The rate of return on foreign assets a member country places with the union's central bank is an important issue to consider for a member that generates large balance of payment surpluses. For example, in the case of Equatorial Guinea, an oil exporter that is a member of the CEMAC, the issue of the rate of return on oil surpluses is currently being addressed jointly with other members and through institutional reform of the monetary union (Box 4).

#### IV. THE CHOICE OF ANCHOR CURRENCY AND OTHER ARRANGEMENTS

32. **For a very small, highly open economy, a system firmly linked to a hard currency provides a simple, effective, and instantly observable anchor for monetary policy.** It also increases policy credibility by reducing the discretionary power of the economic authorities. Of the various forms of such a system, choosing an appropriate one needs to take into account not just a country's economic characteristics but also other considerations. This section first presents the results of analyses based on a gravity model and the method of currency mapping for choosing an anchor currency. It then discusses the choice between a hard peg and joining a monetary union that is linked to a hard currency, and also which union (if any) to choose. More rigid arrangements, such as a currency board or dollarization (Appendix IV), are not considered in this paper in light of the recent trends toward financial and monetary integration in Africa. This paper also does not consider the situation where new monetary unions emerge in Africa and their implications for São Tomé and Príncipe.<sup>11</sup>

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<sup>10</sup> A recent study finds that for a group of 42 developing countries, many of which are relatively large emerging market economies, a flexible exchange rate helped smooth output response to external shocks (Hoffman, 2007).

<sup>11</sup> See Yehoue (2005) for a discussion on a monetary union in the South African Development Community.

#### **Box 4. Equatorial Guinea: Oil Reserve Management and Membership in the CEMAC**

Equatorial Guinea became a member of the Central African Economic and Monetary Union (CEMAC) in 1985. The country started exporting oil in the mid-1990s. As of end-2006, it had contributed about one-third of the gross international reserves of BEAC, the CEMAC central bank.

##### **CEMAC reserve pooling requirements**

All CEMAC members must pool their foreign assets at the BEAC. They are required to repatriate all export earnings and deposit a minimum 65 percent of those earnings at the French treasury. The remainder can be invested in line with BEAC reserve investment rules. CEMAC members are also allowed to invest amounts that are consistent with the region's fiscal policy in oil stabilization funds at the BEAC. Some of the other terms of BEAC deposits include a remuneration rate that is linked to, but lower than the short-term rate in the euro area, restrictions on new deposits, and penalties on deposit withdrawals.

##### **Rate of return on member's foreign assets**

In 2006, the government of Equatorial Guinea placed about one-third of its fiscal surplus with the BEAC and deposited the remainder in commercial banks abroad—some in actively managed accounts and some in conventional deposit accounts. Inflation in Equatorial Guinea in 2006 exceeded the interest rate on BEAC deposits by an average of about 2 percent, resulting in a negative real rate of return of about 2½ percent. At the same time, however, because a significant part of Equatorial Guinea's deposits held abroad were in U.S. dollars, the recent depreciation of the dollar against the euro reduced the CFA franc return on dollar deposits, though remaining higher than BEAC's remuneration rates.

##### **CEMAC reform**

The authorities of Equatorial Guinea are working with its CEMAC partners on BEAC institutional reforms, including resource sharing, governance, and remitting funds held abroad. To raise the real rate of return on member countries' financial assets, BEAC investment strategy may need to be revised.

### **A. The Choice of an Anchor Currency**

#### **Gravity Model**

33. **By applying a gravity model of trade to data from 1995 through 2006, the euro was found to be the preferred anchor currency for São Tomé and Príncipe.** The gravity model is commonly used to study the impact of policy initiatives, such as trade agreements and currency unions. It guides the choice of an anchor currency by using trade and other economic indicators to assess economic links between São Tomé and Príncipe and its international partners. The exercise ranks Europe (including Portugal) first owing to its predominant share in São Tomé and Príncipe's external trade. Africa (mostly Angola) ranks second; it accounts for a substantially smaller share of the country's foreign trade (Box 5).



### Box 5. São Tomé and Príncipe: Application of the Gravity Model

#### Model specification

The following specification is used for estimation:

$$T_{ij} = \alpha + \beta_1 GDP_i + \beta_2 GDP_j + \beta_3 DIST_{ij} + \beta_4 REER + \beta_5 AFR + \beta_6 EUR + \varepsilon_i$$

$T_{ij}$  is the value of imports and exports in U.S. dollar terms from country  $i$  to country  $j$ ; GDP captures the size of the economy; the cost of transportation is proxied by the distance between trading partners ( $DIST_{ij}$ ); and REER stands for the real effective exchange rate—a measure of external competitiveness. This variable will have an ambiguous sign because it affects both the imports and exports of a country. Historical ties are captured by the use of a common-language dummy, which is further broken into common language with Europe (EURL) and common language with Africa (AFRL). Regional ties are captured by the use of two regional blocks, Africa (AFR) and Europe (EUR) respectively.

#### Data

The data set covers 59 countries that traded with São Tomé and Príncipe in 2006. The sample period is from 1995 to 2006. Data on trade, GDP, REER, and distance are obtained from *IMF Direction of Trade Statistics*, *World Economic Outlook*, *International Financial Statistics*, and GEOBYTES. All variables are expressed in logs, except for the binary variables and REER which is a ratio.

#### Results

The pooled least squares estimates (model 7) reveal that (i) domestic output has no effect on total trade; (ii) foreign output is positively related to total trade; (iii) distance is negatively related to trade; (iv) the REER has a negative effect on total trade; and (v) the binary variables all have the expected signs. The Africa dummy is negative and significant. The Europe dummy is positive and significant. The language dummy is also positive and significant and a further breakdown of the language dummy reveals that both common language with Europe and Africa are positive, but only Europe is significant.

#### Estimation Results of Gravity Model

Variable	Panel Least Squares							Random Effects
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP(j)	0.70 *	0.71 *	0.65 *	0.61 *	0.67 *	0.64 *	0.62 *	0.70 *
GDP(i)	0.21	0.23	0.32	0.48	0.48	0.48	0.55	0.24
DIST	-0.78 *	-0.83 *	-1.25 ***	-0.99 *	-1.00 *	-0.95 *	-0.91 *	-1.26 **
REER		-0.74	-0.83 *	-0.85 ***	-0.94 **	-0.94 **	-0.88 ***	-0.70 ***
AFR			-1.25 *	-0.66	-0.90 **	-0.83 ***	-1.00 **	-1.27
EUR				0.62 **	0.55 **		0.68 *	0.24
GDP(j)*EUR						0.11 *		
LANGUAGE					2.51 *	2.53 *		2.43 *
AFRL							0.36	
EURL							4.61 *	
C	1.80	3.06	7.41 *	5.64 **	5.44 **	5.09 **	5.10 **	6.51
No of observations	487	487	487	487	487	487	487	487
Adjusted R-squared	0.23	0.24	0.25	0.26	0.33	0.34	0.33	0.09
Cross-section effect								0.53
Idiosyncratic effect								0.47

Note: \*\*\* 10% significance, \*\* 5% significance, \* 1% significance.

## Currency Mapping Analysis

34. **The currency map method can be used to help determine an appropriate foreign currency anchor for a country** (Box 6). Based on five selection criteria used in the literature to identify an appropriate monetary union for countries, the CEMAC emerges as the most preferable monetary union and hence the CFA franc as the preferred anchor currency for São Tomé and Príncipe, followed by the WAEMU franc, the euro, and the U.S. dollar.<sup>12</sup>

### B. Choosing Between a Monetary Union and a Hard Peg

35. **While the gravity model and currency mapping analysis yield seemingly different results, they share important insights.** The gravity model emphasizes *established* economic ties. Not surprisingly, the euro comes out as a top choice for a currency peg. By contrast, the currency mapping analysis attempts to take into account *potential* economic relations should a currency union be formed. Nevertheless, because the CEMAC and WAEMU CFA francs are firmly pegged to the euro, both methods point to the same hard currency anchor—the euro. In addition, while the specific arrangements are different, there are important similarities between a hard peg to the euro like that of Cape Verde and a CFA franc monetary union: Both arrangements can be based on international agreements on a hard currency credit facility and on firm mechanisms for monitoring and enforcement regarding domestic policies (Appendices II and IV).

36. **Given the important similarities, the choice will largely depend on political, historical, and implementation considerations.** For São Tomé and Príncipe, a hard peg to the euro may be more demanding in terms of the country's own institutional capacity. Because internal trade within the CEMAC and the WAEMU is relatively small,<sup>13</sup> in part because member countries are mainly exporters of primary commodities, existing economic ties may need to be given more weight in choosing an appropriate arrangement. On balance, a hard peg to the euro may have a slight edge over joining the CEMAC or WAEMU, provided that domestic institutional capacity is adequate and that an international agreement on external support and effective surveillance of domestic policies can be secured, à la Cape Verde.

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<sup>12</sup> This ranking of currency preferences is robust regardless of assumptions about the weight used in aggregating criteria-specific preference—i.e., it remains unchanged whether equal weight is given to all criteria or higher weight is given to criteria related to market potentials than to those related to synchronization of business cycles.

<sup>13</sup> On average, intra-WAEMU trade was only about 11 percent of total trade in 2006, and intra-CEMAC trade was even lower at about 1.5 percent.

### Box 6. São Tomé and Príncipe: Currency Mapping Analysis

Currency mapping identifies potential members of a monetary union based on the optimal currency area theory (Berengaut et al., 2006). It selects member countries based on a set of criteria and assumptions about the weight attached to each criterion. This method is applied to determine whether a currency link of São Tomé and Príncipe with the CEMAC CFA franc, the WAEMU CFA franc, the euro, or the U.S. dollar is preferable.

#### Selection criteria and assumptions

*Distance:* The shorter the distance between São Tomé and Príncipe and the currency area under consideration, the lower transportation costs between the two and the more desirable it is to form a currency union. Where appropriate, the average distance between São Tomé and Príncipe and member countries of a monetary union is used.

*Economic size:* The larger the GDP, the bigger the market, and thus the higher the potential for economic exchanges. For a monetary union the sum of GDP of all member countries is used.

*Output fluctuation:* The greater the correlation of growth rates, the more synchronized the business cycles and thus the stronger the basis on which to form a currency union.

*Trade and production structures:* The greater the similarity of export and production structures between São Tomé and Príncipe and a currency area, the less likely they will face asymmetric shocks, and the more desirable it is to form a currency union. Export structures refer to export product mix based on the ten Standard Industrial Trade Classification categories.

*Inflation rate:* The more similar inflation performance, the more synchronized business cycles are, and the more desirable it is to form a currency union.

Two assumptions are made to obtain an aggregate ranking of preferred currency link: (i) equal weights (20 percent) to all criteria; and (ii) higher weights (25 percent) to the two gravity model variables (distance and economic size).

#### Results

The resulting ranking is the same under both assumptions of weights: the CEMAC CFA franc is the preferred anchor currency, followed by the WAEMU CFA franc, the euro, and the U.S. dollar.

#### Currency Mapping: Variables used for ranking

	Variables used for ranking					Aggregate ranking <sup>1</sup>
	Corr (GDP growth) <sup>2</sup>	Corr (CPI growth) <sup>2</sup>	Corr (export structure) <sup>2</sup>	Distance in miles	Size of GDP in million US\$	
CEMAC	0.32	0.40	0.11	575	52	1
WAEMU	-0.01	0.41	0.47	1,605	50	2
Euro area	-0.09	0.19	-0.06	3,984	10,599	3
U.S.A.	-0.04	0.07	-0.08	5,875	13,245	4

<sup>1</sup> This ranking remains unchanged regardless of the weights on the selection criteria, either equal weight or heavier weights to the distance and the size of the economy criteria.

<sup>2</sup> Corr stands for correlation coefficient.

### C. Prerequisites of a Sustainable Regime Change

37. **Regardless of the choice, successful implementation of a new monetary and exchange rate arrangement will require fiscal discipline and prudent debt management** (Box 7). Member states of a monetary union are typically subject to a common code of fiscal conduct consisting of reference values for fiscal variables (such as ceilings on the overall deficit and government debt); common accounting standards for public finances; and budgetary procedures that maintain fiscal discipline. Similarly, an exchange rate peg requires strong fiscal discipline to sustain it without putting undue pressure on official reserves. Fiscal consolidation and improved public financial management thus need to precede any reform of the currency exchange system.

38. **Structural reforms are needed to reduce impediments to private investment and increase market flexibility to sustain the new arrangements.** These will include regulatory and labor market reforms and changes in competition policies. To achieve the full benefits of financial and monetary integration, joining a monetary union needs to be complemented by efforts to harmonize legislation, regulation, and supervision.

39. **Increasing transparency is also important.** Assessment of economic developments and progress toward convergence criteria and policy objectives requires comparable and transparent macroeconomic and financial statistics.

### V. CONCLUSIONS

40. **This paper provides an economic analysis of the choice of monetary and exchange rate arrangements for a very small, highly open, low-income economy.** The study highlights several structural characteristics of São Tomé and Príncipe that set it apart from others: the very small size, extensive use of foreign currencies, rapid exchange rate pass-through, and inflexible product and factor markets. Because of these features, monetary policy is relatively ineffective as a counter-cyclical tool. Under such circumstances, there are benefits from “out-sourcing” monetary policy through appropriate currency arrangements. The benefits of a firmly anchored currency arrangement—lower costs for international transactions and higher policy credibility and price stability—could outweigh the cost of losing an independent monetary policy.

41. **The paper uses statistical methods but also takes into account other factors to identify the appropriate anchor currency and institutional arrangements for São Tomé and Príncipe.** The euro emerges as the preferred choice, either directly through a hard peg or indirectly through a CFA franc monetary union that is firmly linked to the euro. The paper points out similarities between a monetary union and a hard peg; the choice between the two depends on domestic institutional capacity and whether an international agreement on external support and effective surveillance of domestic policies can be secured. It should be

emphasized that the choice of monetary and exchange rate arrangements depend on a variety of economic and non-economic factors and is ultimately a sovereign decision.

**Box 7. Liberia's Experience: The Fundamental Importance of Sound Domestic Policies**

Liberia adopted dollarization in 1946. Since then, the U.S. dollar became the principal medium of exchange in Liberia. Liberian dollars coexisted with the US dollar but only as a secondary medium of exchange at par with the US dollar. From the mid-1980s, the government started running chronic budgetary deficits, reaching more than 10 percent of GDP by late 1980s. Despite the dollarization arrangement, the government was able to finance its deficits by payment arrears and various forms of government liabilities. Simultaneously, the country's external balance considerably worsened in response to weak international commodity prices. The growing internal and external imbalances together with political instability discouraged and eventually stopped foreign funding inflows. Under the dollarization arrangement, this resulted in a sharp reduction of currency circulation and brought about a substantial liquidity squeeze in the economy.

Facing such difficulties, the government decided in 1988 to abandon dollarization and instead formally introduce the Liberian dollar, fixed at par with the US dollar. Subsequently, the government increased the issuance of Liberian dollars, to increase their share in broad money from 10 percent in 1982 to 39 percent in 1988. Reflecting such a large increase in circulation, the Liberian dollar quickly depreciated in the parallel market.

During the civil war period, between 1989 and 1996, both the US dollar and the Liberian dollar were in circulation. However, due to the continuous political and economic upheavals, the credibility of the Liberian dollar was diminished and the economy was predominantly run with the US dollar. When the government eventually decided to depreciate the Liberian dollar in 1998, the value of the Liberian dollar declined to 40 Liberian to US dollar from the official par value. Since the war ended, the Liberian dollar restored some of its credibility, but the economy remains highly dollarised, with 95 percent of all commercial bank loans to the private sector and 79 percent of all commercial bank deposits are in U.S. dollars.

The experience of Liberia's dollarization shows that even the strongest form of exchange rate commitment is not a panacea for macroeconomic stability. Even under a full dollarization arrangement, lax fiscal policy is possible. Moreover, large internal and external imbalances could force a country to abandon its dollarization arrangement. Overall, although the introduction of dollarization can bring some degree of economic policy discipline, the arrangement per se does not guarantee macroeconomic stability unless the country implements appropriate supporting policies as the country suffers from an extremely tight liquidity squeeze.

42. **Successful implementation of a firmly anchored currency arrangement, whether it involves membership in a monetary union or a hard peg, demands fiscal discipline and prudent borrowing policies.** In a firmly anchored currency arrangement, fiscal and other domestic policies are the main instruments of adjustment to exogenous real shocks. Prudent debt management is critically important to minimize the risks of financial imbalances, including currency and maturity mismatches.

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## Appendix I

### The Monetary History of São Tomé and Príncipe before Independence

**Before its independence in 1975, São Tomé and Príncipe was under a currency board regime.** The Banco Nacional Ultramarino was created in 1868 to act as Portugal's private monopoly note-issuer for its colonies. In 1948 the separate colonial foreign-currency funds were centralized in Lisbon and in 1953, currency reform unified the Portuguese escudo and the currencies of the Portuguese colonies, making them a true currency area similar to the French franc zone. A Monetary Fund of the Escudo Zone was also established by Portugal. In February 1963, Portugal issued a ministerial decree liberalizing capital movements in the escudo zone. In March 1963, measures were taken to organize a new payments system for the zone and exchange controls on private transfers from overseas territories to Portugal were imposed by Portugal.

**São Tomé and Príncipe's economic performance under the currency board regime was favorable during 1956-73.** Both inflation and its volatility were very low compared to the period of managed float 1990-2006. Inflation averaged only 2 percent. At same time production and electricity consumption increased substantially, while the trade balance was in surplus most of the time. Also, M1 and real credit to the private sector grew considerably during the period without significantly affecting inflation. Finally, the fiscal deficit averaged Escudos 33 million during 1956-73. With production indicators suggesting that GDP was growing during the same period, the fiscal deficit was actually declining as a percent of GDP.

#### São Tomé and Príncipe: Monetary and Exchange Rate Regimes, 1522-1974

Dates	Monetary Authorities	Official arrangement	Source	Remarks
1522-1859	None	Fixed; Portuguese and foreign coins	General histories	São Tomé and Príncipe became a Portuguese colony in 1522.
1859-1868	None	Fixed; Portuguese real	Portugal, decree of 25 October 1859, cited in Braga Paixão (1964)	The milreis (1,000 reals) and conto (1 million reals) were widely used units of account, especially toward the end of this period.
1868-31 December 1913	Private monopoly issue (1969-53) and	Pegged; 1 local real = 1 Portuguese real	Portugal, law of 16 May 1864 chartering Banco Nacional Ultramarino (BNU), reprinted in Banco Nacional Ultramarino (1977: 20-2)	The BNU was allowed to operate in Portuguese colonies, with marked note issues for each colony. The bank established a branch in São Tomé in 1868, the first bank in the territory. The first coins were issued in 1929.
1914-1974	Currency Union (1953-73))	Pegged; 1 local escudo = 1 Portuguese escudo	Portugal, decree of 22 May 1911; decree of 28 October 1911; Decree No. 141, 18 September 1913	In 1911, Portugal currency changed from escudo at 1 escudo=1,000 reals. Overseas accounting in the new unit began in 1914. The conto, formerly 1 million reals, became 1,000 escudos.

Sources: Kurt Schuler (<http://www.dollarization.org>); Portugal Gazette (1864); Banco Nacional Ultramarino (1977); Braga Paixão (1964).

## Appendix II Cape Verde's Currency Peg

### Pre-euro peg period (-1998)

*Currency arrangement:* Cape Verde introduced the Cape Verde escudo (CVEsc) in 1977 after becoming independent from Portugal. The CVEsc was initially pegged to the Portuguese escudo for and later re-pegged to a basket of currencies (approximately 70 percent of the basket is composed of euro currencies). The central bank's main monetary policy instrument was to maneuver the basket, consistently devaluing the CVEsc by 6-10 percent a year, in order to maintain competitiveness. The central bank also rationed foreign currency when excess demand emerged. As a result, foreign exchange queues were frequent. Due to shortages in their foreign currency holdings, commercial banks accumulated approved but unmet applications for foreign currencies from importers.

*Macroeconomic conditions:* Cape Verde was a small open economy with a very narrow production base and heavily dependent on remittances and foreign aid. Exports, including tourism, virtually did not exist in the pre-euro peg period. Imports-to-exports ratios reached 27 for goods and 4 for goods and services in the 1990s. Cape Verde's main trading partners were Portugal, France, and the Netherlands, making up over 80 percent of total trade.

Overall macroeconomic performance was poor during the period. Inflation often ran above 10 percent. Both the fiscal deficit and the current account deficit frequently exceeded 10 percent of GDP. The fiscal deficit was largely funded by the domestic banking system. The current account deficit was funded by foreign aid, although to some extent large remittances, equivalent to 20 percent of GDP, helped mitigate the imbalances. The country frequently suffered from very low levels of foreign exchange reserves due to the lack of currency credibility and large external imbalances. The country also held large external and domestic debt, reaching 56 percent and 40 percent of GDP, respectively, in 1998. Domestic public debt grew rapidly, reflecting budget deficits and the government taking on public enterprise debt and issuing bonds to absorb a liquidity overhang.

### Introduction of the euro-peg system (1998)

In 1998, the newly elected government announced a comprehensive economic reform program, including the full convertibility of CVEsc. The peg system was initially changed to the Portuguese escudo, with a 6 percent devaluation, at the rate of 0.55 CVEsc/ PSE and then to the Euro at the rate of 110.3 CVEsc/€ The IMF provided a precautionary Stand-by-Arrangement for the period 1998 to 2000, to underpin a donor-supported domestic debt operation.<sup>14</sup> The government undertook a serious reform program, in order to support the change in the exchange system, with the following main pillars:

- *Credit line arrangement with Portugal:* In July 1998, Cape Verde and Portugal agreed on an Exchange Cooperation Accord. The Accord provides a short-term precautionary credit line from the Portuguese government of up to US\$ 50 million, repaid by the end of each year with an annual interest rate of 0.5 percent. The Accord also set up a committee,

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<sup>14</sup> The arrangement expired without any withdrawals.

consisting of the ministries of foreign affairs, the ministries of finance, and the central bank of both countries to monitor macroeconomic conditions. The committee can recommend to the Portuguese government the suspension of the credit line.

- *Fiscal reform:* Cape Verde initiated large scale fiscal restructuring as the Accord demanded the country to abide by the Maastricht criteria. The government strengthened tax-collection efforts, prepared for the introduction of a value-added tax, and reduced current primary expenditure. It also halted bank financing in 1998 and adopted a law limiting its statutory advances from the central bank to 5 percent of the previous year's revenues. The government also started a large scale reduction of domestic debt using privatization proceeds and foreign aid. Domestic debt was gradually replaced with securities issued by the Trust Fund, which pools privatization proceeds in order to avoid liquidity injections.
- *Current and capital account liberalization:* A foreign exchange law was introduced in June 1998 with the aim to ultimately remove all restrictions on current and capital account transactions. In 2004, the country accepted Article VIII of the IMF's Articles of Agreement.
- *Structural reform:* The government launched large scale privatization to enhance economic efficiency and secure funding necessary for fiscal reform and debt reduction.

#### **Post-euro peg period (a crisis in 1999-2000 and subsequent success in 2001 to present)**

The economy grew at a rapid pace immediately after the introduction of the euro-peg system, led by rising foreign direct investment in export-oriented manufacturing, the development of tourism facilities, and increasing remittances. At the same time, the fiscal situation worsened in 1999 and 2000 (elections, severe drought, and mounting costs of cleaning the banking sector problems), despite the strict internal and bilateral monitoring. The government consequently breached its statutory limits on central bank financing. The fiscal expansion led to a rapid deterioration of the external balance. By mid-1999, the central bank depleted foreign reserves to defend the peg system. The government responded to the crisis by temporarily reintroducing foreign exchange rationing, using some privatization receipts for current budgetary obligations, and, as a last resort to defend the peg system, withdrawing the Portuguese credit line. In 2000, the government again withdrew the credit line but failed to meet the end-year repayment, triggering a temporary suspension of the facility. External assistance virtually dried out reflecting the deterioration of fiscal performance and the accumulation of external arrears to foreign creditors. The government, with significant help from the Portuguese government, reinitiated its reform efforts and the situation was normalized by late 2001.

After the crisis, macroeconomic conditions significantly improved in response to the government's comprehensive reform efforts. The fiscal deficit was reduced to around 5 percent of GDP and the current account deficit declined to less than 10 percent of GDP. Inflation went down to low single digits. A dynamic private sector emerged and the export base became larger and more diversified, driven by foreign direct investment. Tourism income grew to over 10 percent of GDP. Foreign reserves were accumulated and the central bank developed a number of policy instruments to control inflation and currency pressures.

## Appendix III

### Managing Oil Wealth and Membership of a Monetary Union

#### Oil and Exchange Rate Pegs

The authorities of São Tomé and Príncipe will need to consider the impact of oil developments on the country's real exchange rate. If, in the period ahead, the country chooses to peg its currency to the euro, for example, given that the euro is its current main trading currency, then consideration must be given to two issues. First, the appropriateness of the fixed exchange rate regime in the face of terms of trade shocks needs to be assessed. Once oil comes on stream, in theory, increased spending would imply a rise in the country's real exchange rate, either through a rise in the nominal exchange rate or through higher inflation. In theory, the authorities will either need to adopt a flexible exchange rate regime, re-peg the currency at a more appropriate level, or engineer an improvement in competitiveness through structural reforms (increasing the flexibility of the economy or improving total factor productivity).<sup>15</sup>

Second, the appropriateness of the peg currency will also need to be assessed. With oil coming on stream, the U.S. dollar will likely become São Tomé and Príncipe's main trading currency. As such, pegging to the euro, if adopted, may no longer be appropriate at the time oil production begins. Issues to consider at the time include the euro/dollar exchange rate volatility and the euro/dollar medium- to long-term movements. Taking into account these factors, consideration must also be given to the impact on imported inflation, particularly given the country's high dependence on imports, and to current account imbalances.<sup>16</sup>

Experience has shown that over the past five years, with oil prices rising substantially, oil exporting countries have mostly encountered overheating economies. Credit was growing too rapidly, inflation was rising, and the prices of assets have exploded. For countries that have a pegged exchange rate, to the dollar or to the euro, interest rates were too low or often negative, reflecting those of the U.S. or the euro area. As such, it may be more appropriate to adopt a more flexible exchange rate regime that would allow countries to regain control of their monetary policies and have a direct impact on inflation developments. Furthermore, a more flexible currency would allow economies to better manage oil price shocks.

#### Oil and Currency Unions

Like with the impact of an upswing in oil on the choice and/or level of a peg, the authorities of São Tomé and Príncipe will need to consider the impact of oil developments on the

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<sup>15</sup> Alternatively, favorable bilateral trade agreements may also help boost trade.

<sup>16</sup> The recent experience of Kuwait is an interesting example. With a sliding dollar increasing the cost of Kuwaiti imports and stoking up inflation to double its historic average, the authorities reverted to a basket of currencies to mitigate the effects of the weak dollar.

country's CEMAC membership requirements, if entry into CEMAC was chosen. Oil inflows will bring to the fore the need to assess the following issues, which are tied to the country's responsibilities as a member of CEMAC:

*Fiscal policy rules:* CEMAC rules require that member countries to coordinate their fiscal policies in order to maintain a regional stable exchange rate of the CFA franc. With the discovery of oil in São Tomé and Príncipe and its coming on stream, the country must decide how much to spend, given its economy's needs and absorptive capacity, and how much to save for future generations. These decisions must be within the CEMAC rules, which are the fiscal convergence rule of no negative balance and the reserve management rule that limits credit to member governments by the BEAC to 20 percent of tax revenues of the previous year. Therefore, these constraints may restrict the authorities in São Tomé and Príncipe from spending according to the country's own needs. At the same time, however, any increase in fiscal spending that reflects oil inflows will put pressure on the real exchange rate and the country's competitiveness, both of which will also affect regional arrangements and rules.

*Exchange rate parity:* Membership in CEMAC implies that São Tomé and Príncipe will have to adopt the CFA franc as its own currency, thus adopting a fixed parity with the euro. However, unlike independently pegging to the euro or the U.S. dollar, the CEMAC currency arrangement is much more rigid, bound by CEMAC institutional rules and strict agreements with the French treasury, which in turn is also bound by euro area institutional rules. If the arguments presented in the above section on the impact of oil on a peg currency are followed, then oil inflows in São Tomé and Príncipe may eventually put forward the question of the appropriateness of CEMAC membership to the country's economic developments.

*Reserve management:* Another requirement of membership in CEMAC is the pooling of reserves. Member countries are obliged to repatriate all export earnings and deposit a minimum 65 percent of foreign exchange earnings at the French treasury (the remainder can be invested according to BEAC's own reserve investment rules). At the same time, members are also allowed to invest amounts (that are consistent with the region's fiscal policy) at the BEAC in oil stabilization funds. Currently, the return on these funds in specific and on BEAC's pooled reserves in general do not provide adequate financial incentives for member governments to comply with reserve rules of CEMAC. The authorities of some CEMAC member countries have taken several ad hoc initiatives, in order to help ensure adequate remuneration, given the need to preserve the value of their oil wealth. In view of any possible increases in São Tomé and Príncipe's deposits related to future oil inflows, the country must decide if CEMAC regional reserve management policies would remain appropriate, taking into consideration the country's current and future consumption needs and the impact on the real exchange rate and competitiveness.

## Appendix IV CEMAC, WAEMU, and Other Currency Arrangements

### CEMAC and WAEMU: *Institutional Framework*

The CFA franc zone was created in 1945 to consolidate the French colonial economies. The currency of the zone, the CFA franc, was first fixed to the French franc. The parity was changed in 1994 to reflect a euro-zone decision to devalue their currencies. The parity then shifted to the Euro at the time of the euro's inception in 1999. The currency is issued by two regional central banks: the *Banque centrale des Etats l'Afrique de l'Ouest* (BCEAO)—responsible for the WAEMU states, and the *Banque des Etats de l'Afrique centrale* (BEAC)—responsible for the CEMAC states. France participates in the executive boards of both banks. The two banks issue two different currencies that are only legal tender in their respective regions. Both currencies are referred to as the CFA franc. The convertibility of the currency is guaranteed by the French treasury.<sup>17</sup>

The treaties establishing the WAEMU and the CEMAC were ratified in 1994 and 1999, respectively, with the following objectives: (i) harmonizing indirect taxes and business laws; (ii) harmonizing macroeconomic conditions; (iii) creating a common market; (iv) freeing the movement of capital, services, and people; and (v) coordinating sectoral policies. Economic policies are coordinated through a multilateral surveillance arrangement, with binding treaties between France and the zone that impose financial and budgetary discipline on members. Four convergence criteria are defined under surveillance: (i) non-negative fiscal balance; (ii) average inflation not exceeding 3 percent; (iii) public debt not exceeding 70 percent of GDP; and (iv) no increase in internal or external arrears in any current year.

### CEMAC: *Reserve Management and Oil Inflows*

Currently, reserve management takes place in the context of existing monetary cooperation agreements with France, which are based on the regional pooling of reserves. All export earnings must be repatriated and a minimum of 65 percent of foreign exchange earnings must be deposited in the operations account with the French Treasury.<sup>18</sup> The remainder can be invested according to BEAC's own reserve investment rules.<sup>19</sup> This arrangement aims to limit drawings on the overdraft facility provided by the French Treasury by imposing a floor on BEAC's foreign assets with the French Treasury, a minimum level of net foreign assets equivalent to at least 20 percent of sight liabilities, and a limit on credit to the governments by BEAC to 20 percent of tax revenues. The current interest rate paid by BEAC on member countries' government deposits range between 50 to 75 basis points below the euro Libor

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<sup>17</sup> The cost to the French treasury of maintaining the CFA franc was only 2.8 percent of the French franc before the devaluation in 1994, and 1.4 percent afterwards to present.

<sup>18</sup> Reserve pooling arrangements currently require that oil-related foreign currency inflows are deposited at BEAC.

<sup>19</sup> The BEAC has agreed with the French Treasury to gradually lower the share of foreign exchange reserves held with the French Treasury from 65 percent to 50 percent by July 2009.

90 days. Net returns on pooled regional reserves are distributed to member states according to an agreed formula.<sup>20</sup>

While a prime consideration of the current reserve pooling framework at the regional level is to keep adequate reserves for balance of payments needs, the BEAC does not have a strategy to assess the needed level of reserves to support the CFA franc.<sup>21</sup> At the same time, however, the reserve management arrangement also allows countries to hold oil stabilization funds at the BEAC (CFA-denominated accounts remunerated at an interest rate linked to what BEAC earns on its French Treasury accounts (ECB rate plus 100 basis points)).<sup>22</sup> There are no region-wide limits and no reserve-pooling-limits must be satisfied before channeling savings to oil funds. Moreover, oil stabilization funds are not currently based on public financial management strategies or on medium-term fiscal frameworks in member countries.

### **Currency Board**

A currency board combines three elements: an exchange rate is pegged to a foreign currency, an automatic convertibility (exchanging domestic currency at a fixed rate whenever desired), and a credible (often legally set) long-term commitment. Under a currency board arrangement, the monetary authority can be divided into two independent agencies: a currency board with exclusive power to issue currency and a central bank (to undertake all other responsibilities). This can speed up the implementation of the currency board and prevent any disruption of other central banking functions. A currency board can only be credible if the central bank holds sufficient official foreign exchange reserves to at least cover a 100 percent of base money, to assure financial markets and the public that every domestic currency bill is backed by an equivalent amount of foreign currency. The main benefit of a currency board is a transparent and credible anti-inflationary policy.

### **Dollarization**

Official dollarization occurs when a government adopts foreign currency as the predominant or exclusive legal tender. Most often, dollarized countries choose such an option due to their exceptionally difficult conditions. For example, Kosovo suffered total loss of confidence in its domestic currency. Timor Leste was facing considerable inefficiencies in the absence of institutional frameworks. In most dollarized economies, the arrangement often helps reduce inflation expectations by imposing fiscal discipline and enhancing policy credibility. In addition to losing monetary policy independence and the lender of last resort capacity, dollarization has high setting up costs (using official reserves to buyback national currency) and lost income from both official reserves and seignorage from issuing national currency.

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<sup>20</sup> BEAC's net profits are distributed to member states as follows: 15 percent to all members in an equal amount; 15 percent according to each member's share in currency in circulation; and 70 percent according to each member's relative contribution to the BEAC's profits.

<sup>21</sup> Reserve coverage varies by country; Equatorial Guinea and the Central African Republic have more reserves than average, while the reserves of Congo and Chad are below average.

<sup>22</sup> A number of member countries invest their oil reserves in offshore accounts instead of at the BEAC.