African Department

11/7

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Olivier Basdevant, Chikako Baba, and Borislava Mircheva

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Cataloging-in-Publication Data
Joint Bank-Fund Library

Basdevant, Olivier.

Macroeconomic vulnerabilities stemming from the global economic crisis : the case of Swaziland / Olivier Basdevant, Chikako Baba, and Borislava Mircheva. – Washington, D.C. : International Monetary Fund, 2012.

p. ; cm. – (Africa Department ; 11/7)

Includes bibliographical references.
ISBN: 978-1-61635-245-5

1. Debts, Public–Swaziland. 2. Financial statements–Swaziland. 3. Foreign exchange rates–Swaziland. 4. Fiscal policy–Swaziland. I. Baba, Chikako. II. Micherva, Borislava. III. International Monetary Fund. IV. Series: International Monetary Fund. Africa Dept. (Series); 11/7. V. Title.

HJ8836.B37 2010

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I. Introduction

The Kingdom of Swaziland (thereafter Swaziland) is a small open economy bordering Mozambique and South Africa. It is a landlocked country with a small open economy heavily dependent on sugar exports and tourism and with more than 80 percent of its imports originating from South Africa. Swaziland is a member of the Southern African Customs Union (SACU) and has increasingly relied on SACU transfers as a source of fiscal revenue and foreign exchange receipts over the last few years. Its currency, the lilangeni, is pegged at parity with the South African rand under the Common Monetary Area (Box 1). The rand is also legal tender in Swaziland.

Swaziland has faced a significant fiscal crisis since 2010. Because of the global economic crisis, Swaziland lost 11 percent of GDP in the fiscal year that ended March 31, 2011 (FY 2010/11) in transfers from the Southern African Customs Union (SACU), which is largely expected to be permanent (see Mongardini and others, 2011, for further discussions). As a result, the deficit increased from ½ percent of GDP in FY 2008/09 to 13¾ percent in FY 2010/11. The fiscal deficit has been financed largely by drawing down government deposits at the central bank and accumulating domestic arrears. The fiscal crisis has also bolstered external weaknesses. Gross official reserves declined to about 3 months of import cover at end-2010, down from 6¾ months at end-2008. In addition, with the deteriorating economic situation in the country, foreign direct investment and other financial inflows have virtually stopped. The weakening of both the fiscal and external position has led to increasing vulnerabilities, not only on public finances, and the central bank international reserves, but also on commercial banks, which are now exposed to the government, and the private sector, which suffers liquidity pressures owing to the large stock of government arrears.

Box 1. The Common Monetary Area (CMA)[1]

The Common Monetary Area (CMA) is a monetary union in which Lesotho, Namibia, and Swaziland have linked their domestic currencies to the South African rand. Within the CMA, each country issues its own currency, and bilateral agreements define where these currencies are legal tender. The smaller countries (Lesotho, Namibia, Swaziland—LNS) have pegged their currency 1-to-1 to the South African rand. The South African Reserve Bank (SARB) has adopted an inflation targeting system, thus letting the rand float. The South African rand is also legal tender in all member countries of the CMA, while the three other currencies are only legal tender in their own country.

For LNS, the local currency and the rand are perfect substitutes, with no rand-conversion cost, and no restrictions on transfers of funds, whether for current or capital transactions. All four members of the CMA (together with Botswana) belong to the Southern African Customs Union. As a consequence, capital and goods are highly mobile across the CMA region.[2] This free movement brings large benefits in normal times to LNS countries, because they benefit from South African investments and access to the South African market. However, this advantage can reverse itself in the event of a crisis, facilitating capital outflows, notably to South Africa. This is exacerbated even further by the absence of conversion costs between the local currency and the rand.

The CMA is not a full currency union. There is no common central bank, no common pool of reserves, and no regional surveillance of domestic policies. The exchange rate arrangements of the smaller countries under the CMA share certain characteristics of a currency board—domestic currency issues are required to be fully backed by foreign reserves (except for Swaziland where it is not a requirement). Unlike a typical currency board, there is no legal restriction prohibiting the central bank of a small member country from acquiring domestic assets. The small member countries have not made an irrevocable commitment to keep a given exchange rate level against the South African rand. There is no arrangement that member countries provide mutual support if the exchange rate peg comes under pressure. There is no formal mechanism for fiscal transfers to cushion the impact of asymmetric shocks. However, the SARB will, on request, make the required foreign exchange available to other members of the CMA.

Contrary to other CMA members, Swaziland has the option to adjust its exchange rate unilaterally. Such an adjustment would not require formal consultations with the South African authorities. Additionally, the CMA does not ask Swaziland to cover its currency in circulation 1-to-1, contrary to the other CMA countries, by gross international reserves of the Central Bank of Swaziland (CBS). These dispositions were not included in the bilateral agreement between Swaziland and South Africa signed in 1992, and the reintroduction of the rand as legal tender was done unilaterally by the Swaziland authorities in 2003.

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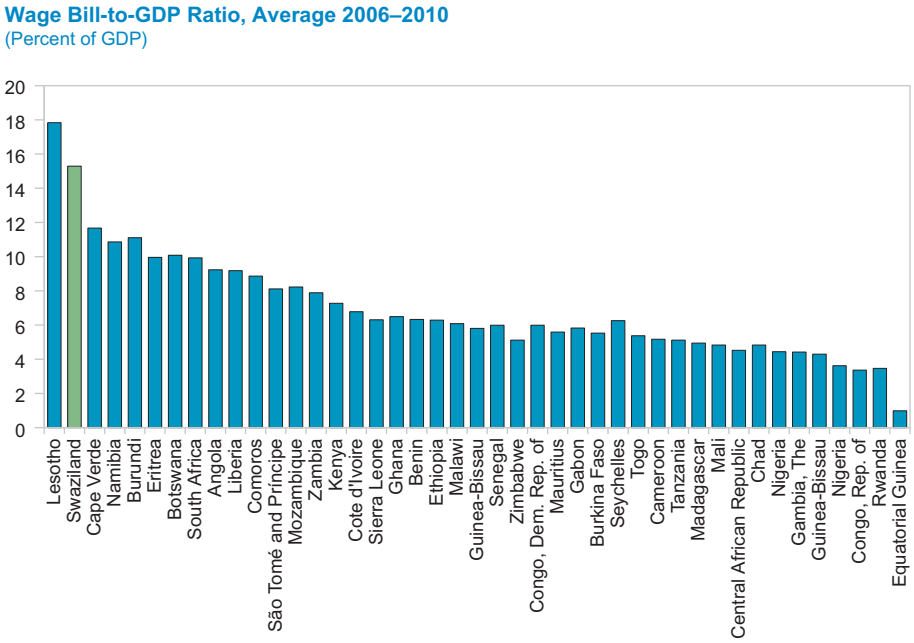
[1] See Wang and others (2007) for further discussion on the CMA.

[2] The only exceptions result from the member countries' investment or prudential liquidity requirements prescribed for financial institutions.

Figure 1. Wage Bill Comparison in Sub-Saharan Africa, 2006–10



Sources: Country authorities; IMF staff estimates.

The loss of SACU transfers has exposed accumulated structural imbalances. The wage bill is one of the highest in sub-Saharan Africa (Figure 1), with wage and employment policies primarily designed to provide social safety nets and protect social stability. In addition, weaknesses in the budget process have led to a ratcheting up of spending.

The purpose of this paper is to assess Swaziland's main macroeconomic vulnerabilities and how they affect external stability. The paper combines several standard tools of IMF surveillance (debt sustainability analysis, balance sheet approach, exchange rate assessment, reserve adequacy assessment) in a comprehensive analysis of the main macroeconomic risks facing a small open economy like Swaziland following the global economic crisis. The key risks stem from (i) an unsustainable fiscal policy, which threatens external stability, (ii) significant exposure of the corporate sector to the external sector and the government, (iii) an uncompetitive economy, as underlined by an overvalued exchange rate, and (iv) a vulnerable external position with a lower-than-adequate level of international reserves. The main policy implications of these analyses suggest the need for a strong upfront fiscal adjustment, with the objective of reducing the risk of contagion of the crisis to other sectors of the economy, and strengthening the external position. The policy design of such an adjustment is further discussed in companion papers (Mongardini and others, 2011; Basdevant and others, 2011).

The rest of the paper is organized as follows. After the implications of fiscal risks on debt sustainability analysis are discussed (Section II), cross-sector risks are analyzed through a balance sheet approach (Section III). The balance sheet approach is then complemented with assessments of the exchange rate, which is found to be significantly overvalued (Section IV), and of reserves adequacy (Section V).

II. Swaziland: Debt Sustainability Analysis

The level of government debt in Swaziland is moderate, albeit rapidly increasing. Total public debt rose from 12½ percent of GDP in 2009/10 to 16 percent of GDP (excluding arrears) and 20½ percent of GDP (including domestic arrears) at end-2010/11. All arrears are domestic, and are the result of the drying up of market financing to cover the fiscal deficit. The composition of debt has also changed. Domestic debt stood at 1½ percent of GDP in 2009/10. After the crisis, it increased to 6 percent of GDP (10½ percent including arrears), following the upward revision of the debt ceiling in November 2010.[1] Domestic debt was overwhelmingly short-dated, consisting primarily of treasury bills, until 2010. Subsequently, the government issued long-term bonds, while the Central Bank of Swaziland (CBS) introduced its own paper with 182 days' maturity in January 2011 to complement the 28-day and 56-day CBS bills and government 91-day treasury bills already in the market. Meanwhile, the external debt stock decreased slightly to about 10 percent of GDP at end 2010/11. External debt has been contracted in a variety of currencies. The predominant currencies are the South African rand (about 40 percent), euro (20 percent), U.S. dollar (20 percent), and Japanese yen (10 percent). A number of other currencies also have smaller shares in the portfolio, including the Swiss franc, Danish krone, and Kuwaiti dinar.

The debt sustainability analysis (DSA) below provides guidance on how Swaziland can maintain its public debt below 40 percent of GDP. As indicated by several empirical studies, this debt level is the approximate threshold above which emerging markets have experienced debt crises (Manasse, Roubini, and Schimmelpfennig, 2003). Debt crises have also been associated with a share of external to total debt above 60 percent (Reinhart, Rogoff, and Savastano, 2003). In the case of Swaziland, external debt vulnerability is higher, given the relatively low export base as well as an undiversified economy.

Fiscal imbalances weigh on Swaziland public debt and external debt and will continue over the medium term. The large fiscal deficit accumulated

[1] The government amended the law defining the domestic debt ceiling to raise it to 25 percent (from 18 percent) of GDP beginning November 15, 2010.

during fiscal 2010/11 (13¾ percent of GDP) was triggered by the loss in SACU transfers. It also revealed large imbalances, expected to be reduced over a 3-year fiscal adjustment according to the authorities' fiscal adjustment roadmap (FAR).[2] Given the expected growth slowdown resulting from the fiscal adjustment, public debt is expected to further increase in percent of GDP. At present, private external debt is relatively low (about 3 percent of GDP), so the dynamic of the external debt is dominated by public debt.

A. Baseline Scenario and Underlying Assumptions

The baseline scenario is predicated on the implementation of the authorities' FAR, with the objective of restoring debt sustainability. The main assumptions are a primary balance below 3 percent of GDP by 2013/14 and a public debt-to-GDP ratio stabilized below 40 percent. Under this scenario, external sustainability is achieved with an adjustment in the current account deficit in line with the fiscal adjustment. Moreover, the adjustment is assumed to be concomitant to structural reforms aimed at developing the private sector, and higher export-oriented growth. Overall, the analysis shows that sustainable trajectories are indeed those keeping the debt-to-GDP ratio around 30 percent, with a primary deficit around 2 percent of GDP over the medium term.

Public debt is expected to be subscribed largely by donors over the adjustment period, with a gradual increase in external debt. The domestic debt market remains small and already exposed to the government. Given the uneasiness of banks in regard to investing further in government paper, there is also a need for financing from multilateral and bilateral donors. However, Swaziland is not eligible for concessional terms, given its current per capita income. Donor financing would also provide long-term financing, which will reduce short-term domestic rollover risks.

B. Sensitivity Analysis

The public DSA indicates that Swaziland is largely vulnerable to shocks to the primary balance (Table 1 and Figure 2). Namely, the "unchanged

[2] The FAR is predicated on reducing the fiscal deficit gradually to about 3 percent of GDP by 2014/15. On the revenue side, it relies on (i) improvements in tax administration, (ii) removal of tax exemptions and harmonization of some tax rates to the regional average, and (iii) the introduction of VAT beginning with fiscal year 2012/13. On the expenditure side, it relies primarily on wage bill cut, which is expected to be achieved through (i) freezing vacancies and reallocating resources more efficiently; (ii) reducing the overall size of the public service by 20 percent, by implementing the early retirement exit scheme EVERS; and (iii) reviewing compensation policy and introducing performance management systems. Additionally, savings on goods and services, and transfers are planned, through improvements in Swaziland PFM system notably in terms of procurement rules and expenditure controls.

Table 1. Swaziland: Public Sector Debt Sustainability Framework, 2006–16

(Percent of GDP, unless otherwise indicated)

	Actual					Projections						Debt-stabilizing primary balance[9]
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Baseline: Public sector debt[1]	17.3	18.1	16.9	13.6	15.1	18.4	24.3	27.5	28.4	29.3	29.9	0.1
Of which: foreign-currency denominated	14.6	15.9	15.3	12.0	10.0	13.5	17.4	20.7	22.0	21.4	21.1	
Change in public sector debt	0.2	0.9	-1.3	-3.3	1.5	3.3	5.9	3.2	1.0	0.8	0.7	
Identified debt-creating flows	-8.5	-7.7	-0.4	4.3	9.4	9.8	-0.6	0.4	0.8	0.3	0.4	
Primary deficit	-8.4	-6.8	-1.8	4.0	11.3	10.1	-1.0	-0.1	0.8	0.5	0.3	
Revenue and grants	40.9	38.3	39.6	37.4	27.8	24.7	36.4	31.7	29.4	30.5	31.1	
Primary (noninterest) expenditure	32.5	31.5	37.7	41.4	39.1	34.8	35.4	31.6	30.2	31.0	31.4	
Automatic debt dynamics[2]	-0.1	-0.9	1.4	0.3	-1.9	-0.3	0.4	0.5	0.0	-0.2	0.1	
Contribution from interest rate/growth differential[3]	-1.0	-1.4	-1.1	-0.1	-0.4	-0.3	0.4	0.5	0.0	-0.2	0.1	
Of which: contribution from real interest rate	-0.5	-1.0	-0.6	0.1	-0.1	-0.3	0.1	0.8	0.4	0.4	0.9	
Of which: contribution from real GDP growth	-0.4	-0.4	-0.5	-0.2	-0.2	0.0	0.3	-0.2	-0.5	-0.6	-0.7	
Contribution from exchange rate depreciation[4]	0.9	0.6	2.5	0.3	-1.6	...	...	...	...	...	...	
Other identified debt-creating flows	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other (specify, e.g., bank recapitalization)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Residual, including asset changes[5]	8.7	8.6	-0.9	-7.6	-7.9	-6.5	6.5	2.8	0.2	0.5	0.2	
Public sector debt-to-revenue ratio[1]	42.2	47.3	42.6	36.3	54.4	74.3	66.7	86.6	96.6	96.0	96.3	
Gross financing need[6]	-10.2	-7.0	-0.5	6.0	11.7	10.3	-0.7	0.4	1.4	0.9	0.5	
($US billions)	-271.9	-206.4	-15.2	179.1	433.3	408.6	-28.5	16.6	55.5	35.5	23.7	
Scenario with key variables at their historical averages[7]						18.4	24.7	27.2	27.3	27.6	27.6	-1.1
Scenario with no policy change (constant primary balance) in 2011–2016						18.4	26.0	35.5	46.8	61.1	78.5	4.1
Key Macroeconomic and Fiscal Assumptions Underlying Baseline												
Real GDP growth (percent)	2.9	2.8	3.1	1.2	2.0	0.3	-2.0	1.0	1.9	2.4	2.6	
Average nominal interest rate on public debt (percent)[8]	6.2	5.4	6.0	6.2	5.4	4.3	5.8	6.4	6.5	6.0	6.2	
Average real interest rate (nominal rate minus change in GDP deflator, percent)	-3.2	-6.4	-3.4	0.7	-0.8	-2.1	0.4	3.3	1.8	1.7	3.2	
Nominal appreciation (increase in U.S. dollar value of local currency, percent)	-6.0	-4.1	-14.5	-2.2	15.3	...	...	...	...	...	...	
Inflation rate (GDP deflator, percent)	9.5	11.8	9.4	5.4	6.2	6.4	5.4	3.1	4.6	4.3	3.0	
Growth of real primary spending (deflated by GDP deflator, percent)	-3.7	-0.4	23.5	11.0	-3.7	-10.6	-0.3	-10.1	-2.4	5.0	3.8	
Primary deficit	-8.4	-6.8	-1.8	4.0	11.3	10.1	-1.0	-0.1	0.8	0.5	0.3	

[1] Indicate coverage of public sector, e.g., general government or nonfinancial public sector, as well as whether net or gross debt is used.

[2] Derived as $[(r - \pi(1+g) - g + \alpha\varepsilon(1+r)]/(1+g+\pi+g\pi))$ times previous period debt ratio, with r = interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; α = share of foreign-currency-denominated debt; and ε = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

[3] The real interest rate contribution is derived from the denominator in footnote 2 as $r - \pi(1+g)$ and the real growth contribution as $-g$.

[4] The exchange rate contribution is derived from the numerator in footnote 2 as $\alpha\varepsilon(1+r)$.

[5] For projections, this line includes exchange rate changes.

[6] Defined as public sector deficit, plus amortization of medium- and long-term public sector debt, plus short-term debt at end of previous period.

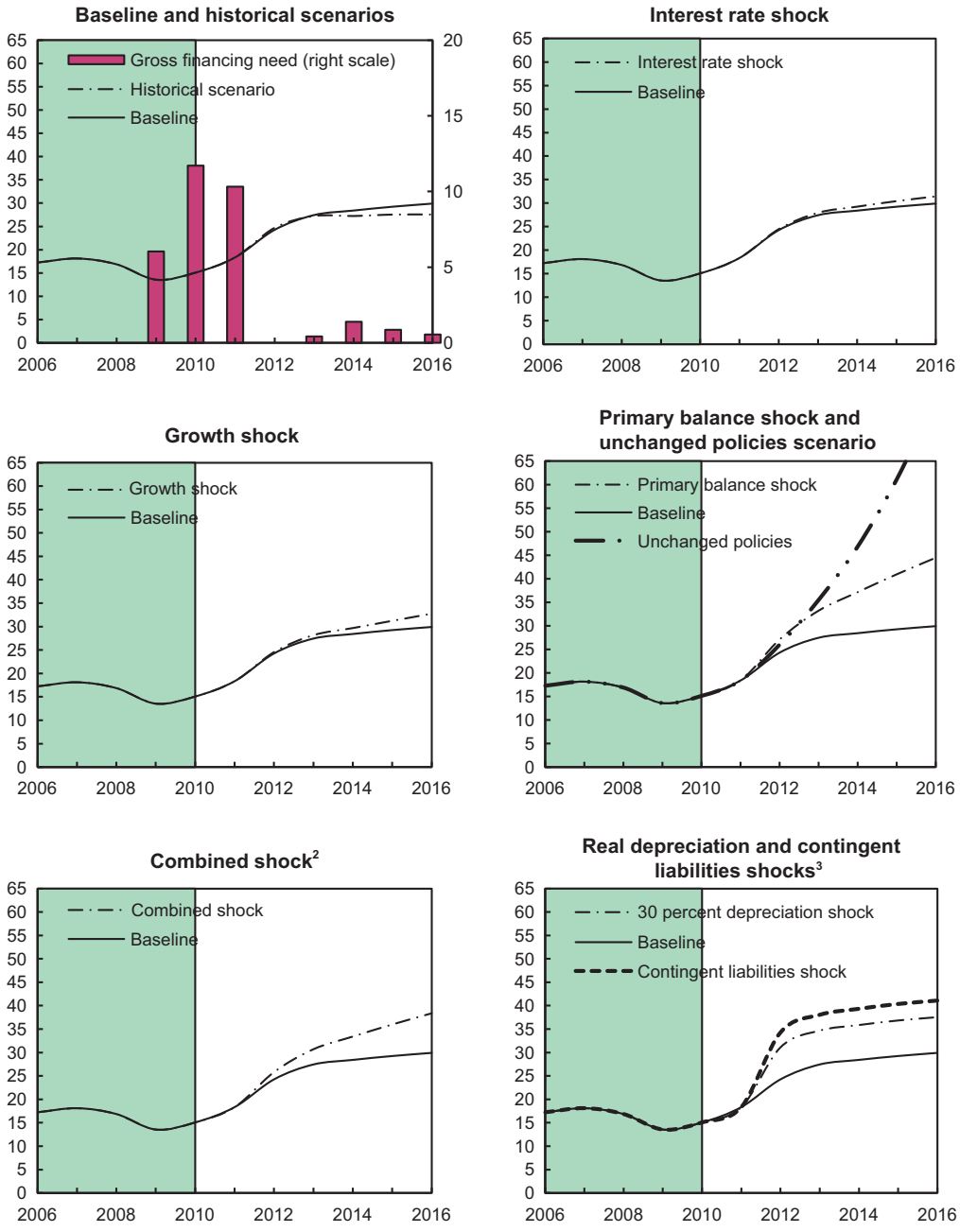
[7] The key variables include real GDP growth, real interest rate, and primary balance in percent of GDP.

[8] Derived as nominal interest expenditure divided by previous period debt stock.

[9] Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

Figure 2. Swaziland: Public Debt Sustainability: Bound Tests[1]

(Public debt, percent of GDP)



Sources: Country authorities; IMF staff estimates and projections.

[1]Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. For historical scenarios, the historical averages are calculated over the ten-year period, and the information is used to project debt dynamics five years ahead.

[2]Permanent one-fourth standard deviation shocks applied to real interest rate, growth rate, and primary balance.

[3]One-time real depreciation of 30 percent and 10 percent of GDP shock to contingent liabilities occur in 2010, with real depreciation defined as nominal depreciation (measured by percentage fall in dollar value of local currency) minus domestic inflation (based on GDP deflator).

policies" scenario, based on the existing pattern of unadjusted expenditures, is unsustainable, with the debt-to-GDP ratio rising very rapidly above 60 percent of GDP by 2015. Moreover, the primary balance has shown significant variability in the past, reflecting weaknesses in expenditure controls, which in turn provide another risk of an unsustainable debt dynamics.

In contrast, public debt sustainability is resilient to shocks on interest rates, growth, and even contingent liabilities. Swaziland's public debt is contracted under fixed interest rates, with a rather low premium (in the range of 100–200 basis points) compared with South African rates. Growth has been rather stable during past years. Thus, looking forward, Swaziland is more exposed to the risk of a sudden recession, which could be triggered by a further delay in fiscal adjustment, as opposed to unexpected shocks on growth, which have been fairly small in the past. Finally, Swaziland has small contingent liabilities, explaining the resilience of debt to the sensitivity analysis.

The external DSA reinforces the message of the public DSA, because fiscal discipline is essential to maintaining a sustainable current account deficit. The external DSA (Table 2 and Figure 3) shows a rapidly growing external debt, which remains, under the baseline, below 40 percent of GDP. Because public borrowing is expected to shift from primarily domestic to external, it is not surprising that external debt increases. However, it does remain sustainable under the baseline scenario.

The sensitivity analysis for external debt confirms the resilience to growth and interest rate shocks, but external debt is vulnerable to real depreciation shocks, as well as current account shocks. A shock of ¼ standard deviation of the current account balance would rapidly put debt on an unsustainable path: it would reach about 45 percent of GDP by 2016, while still increasing at a fast pace. This dynamic reflects the key role of fiscal policy in achieving fiscal and external stability under the fixed exchange rate regime. Finally, a real depreciation of 30 percent (which occurred in 2009) would also put external debt at risk of debt distress by bringing the external debt-to-GDP ratio to about 40 percent by 2016.

C. Conclusion

Overall, both DSA exercises underscore the need for implementing a strong upfront fiscal adjustment, with a specific emphasis on restoring competitiveness to protect Swaziland against a current account shock. In this context, the authorities' FAR was, and remains, broadly appropriate, with a targeted deficit below 3 percent of GDP by 2014/15. Such an objective would be consistent with public debt sustainability. However, emphasis should also be put on the composition of the adjustment. Reducing the wage bill, and adjusting real wages downward, is essential to improving competitiveness and reducing of Swaziland's exposure to external risk.

Table 2. Swaziland: External Debt Sustainability, 2006–16

(Percent of GDP, unless otherwise indicated)

	Actual							Projections						Debt-stabilizing non-interest current account[6]
	2006	2007	2008	2009	2010			2011	2012	2013	2014	2015	2016	
Baseline: External debt	17.1	18.0	16.9	13.5	13.0			16.4	20.3	23.7	24.8	24.0	23.9	-4.1
Change in external debt	0.3	1.0	-1.1	-3.5	-0.5			3.4	3.9	3.3	1.1	-0.8	-0.1	
Identified external debt-creating flows	1.9	0.1	4.8	11.1	10.2			6.7	-4.8	1.8	2.5	0.2	-0.7	
Current account deficit, excluding interest payments	6.5	1.5	7.3	12.9	15.8			10.3	-2.6	4.7	5.6	3.6	2.7	
Deficit in balance of goods and services	12.8	11.0	15.4	17.7	15.3			11.3	11.3	11.7	10.3	9.0	8.5	
Exports	72.9	74.6	63.2	63.1	55.8			59.1	58.5	59.3	60.1	60.9	60.5	
Imports	85.7	85.5	78.6	80.7	71.1			70.5	69.8	71.0	70.4	69.9	69.0	
Net non-debt-creating capital inflows (negative)	-4.6	-0.5	-4.0	-2.0	-3.6			-3.9	-3.3	-3.8	-3.8	-4.0	-4.0	
Automatic debt dynamics[1]	0.0	-0.9	1.5	0.2	-2.0			0.4	1.1	0.9	0.8	0.7	0.6	
Contribution from nominal interest rate	0.9	0.7	0.9	0.9	0.7			0.4	0.8	1.1	1.2	1.2	1.2	
Contribution from real GDP growth	-0.5	-0.4	-0.6	-0.2	-0.2			0.0	0.3	-0.2	-0.4	-0.6	-0.6	
Contribution from price and exchange rate changes[2]	-0.5	-1.2	1.2	-0.5	-2.5			...	...	...	...	...	...	
Residual, incl. change in gross foreign assets[3]	-1.5	0.8	-5.9	-14.6	-10.7			-3.3	8.7	1.6	-1.4	-1.0	0.6	
External debt-to-exports ratio (percent)	23.4	24.2	26.8	21.3	23.3			27.7	34.7	39.9	41.3	39.5	39.5	
Gross external financing need (billions of U.S. dollars)[4]	0.3	0.1	0.2	0.4	0.6			0.5	0.0	0.3	0.3	0.3	0.3	
(percent of GDP)	10.5	3.3	8.4	14.0	17.1			11.6	-0.5	7.3	8.6	6.9	6.1	
Scenario with key variables at their historical averages[5]								16.4	24.1	24.7	23.3	22.3	22.8	-3.5
Key Macroeconomic Assumptions Underlying Baseline						10-Year Historical Average	10-Year Standard Deviation							
Real GDP growth (percent)	2.9	2.8	3.1	1.2	2.0	2.3	0.9	0.3	-2.0	1.0	1.9	2.4	2.6	
GDP deflator in U.S. dollars (change in percent)	2.9	7.3	-6.5	3.1	22.4	8.2	18.5	6.7	0.3	-1.6	0.6	0.8	3.0	
Nominal external interest rate (percent)	5.6	4.6	4.7	5.5	6.3	5.4	1.1	3.5	4.8	5.5	5.3	5.1	5.3	
Growth of exports (U.S. dollar terms, percent)	1.5	12.8	-18.3	4.1	10.4	6.8	20.8	13.4	-2.8	0.8	3.9	4.5	5.1	
Growth of imports (U.S. dollar terms, percent)	-0.3	10.0	-11.4	7.2	9.9	7.4	17.9	6.1	-2.6	1.0	1.7	2.4	4.4	
Current account balance, excluding interest payments	-6.5	-1.5	-7.3	-12.9	-15.8	-3.1	7.5	-10.3	2.6	-4.7	-5.6	-3.6	-2.7	
Net non-debt-creating capital inflows	4.6	0.5	4.0	2.0	3.6	2.4	3.3	3.9	3.3	3.8	3.8	4.0	4.0	

[1] Derived as $[r - g - \rho(1+g) + \varepsilon\alpha(1+r)]/(1+g+\rho+g\rho)$ times previous period debt stock, with r = nominal effective interest rate on external debt; ρ = change in domestic GDP deflator in U.S. dollar terms, g = real GDP growth rate, ε = nominal appreciation (increase in dollar value of domestic currency), and α = share of domestic-currency-denominated debt in total external debt.

[2] The contribution from price and exchange rate changes is defined as $[-\rho(1+g) + \varepsilon\alpha(1+r)]/(1+g+\rho+g\rho)$ times previous period debt stock. ρ increases with an appreciating domestic currency ($\varepsilon > 0$) and rising inflation (based on GDP deflator).

[3] For projection, line includes the impact of price and exchange rate changes.

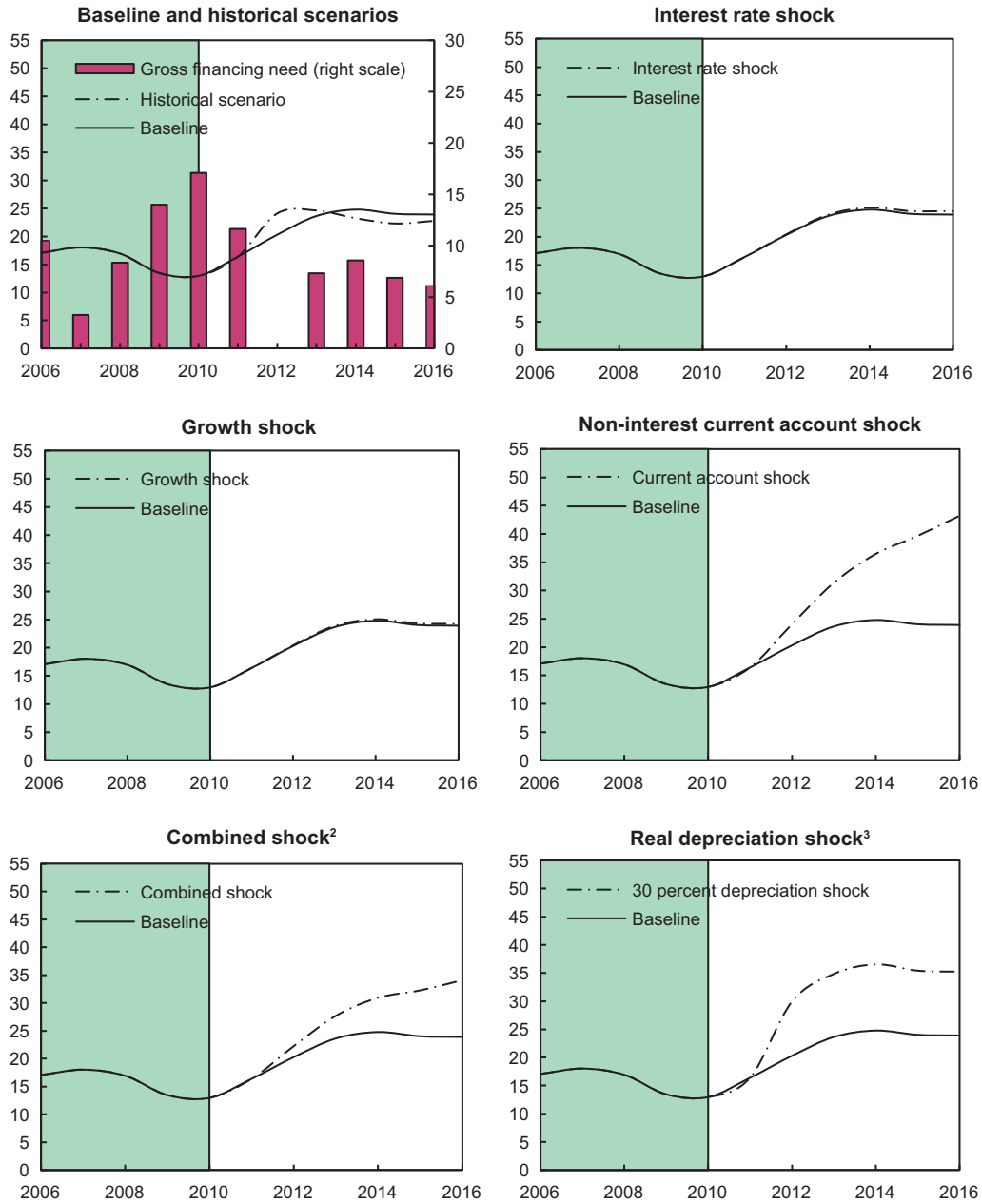
[4] Defined as current account deficit, plus amortization on medium- and long-term debt, plus short-term debt at end of previous period.

[5] The key variables include real GDP growth, nominal interest rate, dollar deflator growth, and both non-interest current account and non-debt inflows in percent of GDP.

[6] Long-run, constant balance that stabilizes the debt ratio assuming that key variables (real GDP growth, nominal interest rate, dollar deflator growth, and non-debt inflows in percent of GDP) remain at their levels of the last projection year.

Figure 3. Swaziland: External Debt Sustainability: Bound Tests[1]

(External debt, percent of GDP)



Sources: Country authorities; IMF staff estimates and projections.

[1] Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.

[2] Permanent one-fourth standard deviation shocks applied to real interest rate, growth rate, and current account balance.

[3] One time real depreciation of 30 percent occurs in 2011.

III. Balance Sheet Vulnerabilities

The Balance Sheet Approach (BSA)[3] applied to Swaziland highlights cross-sectoral risks (Box 2). It is based on a matrix of financial assets and liabilities of four sectors of the economy: the government, the financial sector (including the central bank), the private sector, and the rest of the world (external sector). By construction, the sum of all the net positions of each sector is equal to zero. Three main vulnerabilities emerge from the BSA analysis for Swaziland: (i) weak fundamentals, largely coming from an unsustainable fiscal policy, (ii) structural constraints on the private sector coupled with an overvalued real exchange rate, and (iii) potential for capital account outflows. The data used are monetary statistics, the International Investment Position (IIP), and government debt data, as reported by the authorities to the IMF. The latest IIP available is for 2009, and the 2010 estimates were derived using the preliminary estimates for the 2010 balance of payment. Data on 2010 public debt are still being finalized, but a rough decomposition of public debt in domestic and foreign currency is available.

A. Government Vulnerabilities Stem from Financial Mismatches

The high fiscal deficit level in FY 2010/11 has led to a significant debt accumulation and a large buildup of domestic arrears (Figure 4). As of end-2010, government liabilities amounted to about E 4¼ billion (16 percent of GDP), split between debt of E 3½ billion (12½ percent of GDP), and arrears of almost E 1 billion (3¼ percent of GDP), owed to the private sector (including pension funds). The accumulation of arrears has been a very recent phenomenon. As the deficit sharply rose toward the end of 2010, the government faced increasing difficulties raising adequate financing. Although government deposits to the central bank were partly used, the fixed exchange rate system limited the possibility of using this instrument, because gross international reserves decline 1-to-1 when the government draws down its deposits. The debt stock remains low, at 12½ percent, and is largely external (10¼ percent of GDP). However, debt has already increased by 3 percentage points of GDP from 2008/09 to 2010/11.

Government assets are not liquid, implying a significant maturity mismatch. The government has limited liquid financial assets, mostly deposits at the central bank. These assets cannot be fully used for deficit financing, as they would create pressures on central bank reserves. In contrast, the government holds significant illiquid assets, from part- or full-ownership of companies in competitive sectors (banks, mobile telecommunication, sugar production, insurance). These illiquid assets cannot be sold in the short run to alleviate the current fiscal crisis.

[3] See Box 2 for an overview of the balance sheet approach and references.

Box 2. The Balance Sheet Approach[1]

The balance sheet approach helps identify sources of vulnerability in the economy from mismatches between sectoral balance sheets. This approach examines the stock of variables in the sectoral balance sheets of a country and its assets and liabilities. Four types of balance sheet mismatches are identified. All four can help determine the ability of a country to honor its commitments in the event of an internal or external shock.

- **Maturity mismatches**, i.e., a gap between the liabilities due in the short run and available liquid assets. In such a scenario, the government (or any other sector) faces a short-term risk of much higher interest rates, which would strengthen its liquidity, and eventually a rollover risk as investors choose not to roll over maturing debt.

- **Currency mismatches**, i.e., a risk associated with capital loss owing to a change in the exchange rate. Considering that banks have a large volume of liabilities denominated in foreign currency, a large depreciation of the domestic currency can increase the burden of the debt held in foreign currency. It can also lead to a contraction of investment, especially foreign investment.

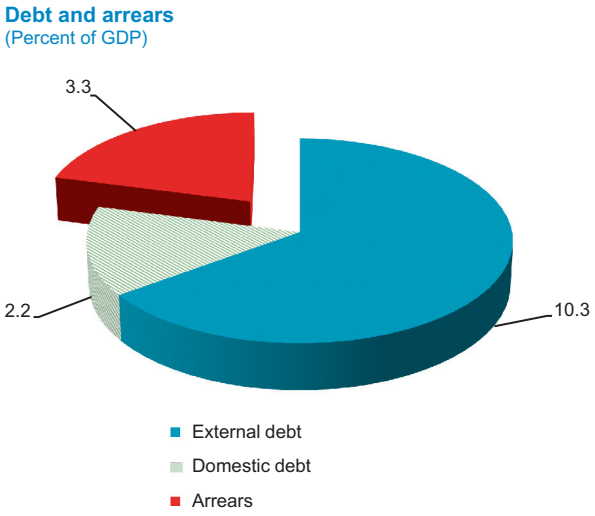
- **Capital structure problems**, i.e., a heavy reliance on debt rather than equity financing. When debt financing is preferred to equity financing, banks are less likely to be in a position to offset shocks. This is because debt repayments remain unchanged regardless of the situation of the country while equity could be used as a buffer because if earnings drop so would remitted dividends. Therefore, a country that finances its current account deficit with debt, especially short term, places itself at a greater risk than it would if long-term debt or foreign direct investment is used.

- **Solvency problems**, i.e., when assets are not sufficient to cover liabilities. When a country is facing a solvency problem, liabilities (including contingent liabilities) are not commensurate with assets or with the future revenue stream. Such a situation occurs, for example, in a country where the government debt is well above its available assets and the net present value of its expected future fiscal balances.

The balance sheet approach can also assess the case for external financial intervention. If vulnerabilities stem from the balance sheet of the private sector, the government could intervene by restructuring the sector's liabilities. In some cases, external financial support may be justified, e.g., when the central bank does not hold an adequate level of foreign exchange reserves.

[1] See Allen and others (2002), Rosenberg and others (2005), and Mathisen and Pellechio (2006).

Figure 4. Swaziland: Composition of Government Liabilities, end–2010



Sources: Swaziland authorities, and IMF staff computations.

External stability is of utmost importance to protect the peg, and the fiscal risks identified could eventually reflect on Swaziland's external position (Table 3).[4] Government deposits at the central bank (E 2½ billion, 8½ percent of GDP) play a role not only as a buffer for government finances, but also as a buffer for the international reserves of the central bank. Given the lack of available financing, the government has used extensively its deposits at the central bank, which stood just above E 2 billion at end-June 2011. Aware of the risk on the external position, the government is adequately committed to protecting its deposits, precisely to preserve Swaziland's external position. Additionally, the authorities need to build a stronger track record of sustainable fiscal policies. A perception of time-inconsistent policies could create negative expectations from the private sector, eventually translating into a more fragile external position. Private outflows can indeed be facilitated under the CMA and would weaken not only the reserve position of the central bank, but also commercial banks' capacity to finance the private sector.

B. Government Arrears Weaken the Private Sector

The private sector is exposed primarily to the rest of the world and the government. At present, the net position of the private sector vis-à-vis the external sector is E –8½ billion (–31 percent of GDP, Table 3), owing to

[4] See Krugman (1979) and Flood and Garber (1984) on the impact of depleting government deposits on the external position, and Obstfeld (1994), Drazen and Masson (1994) or Cole and Kehoe (1996) on the impact of adverse expectations on external position.

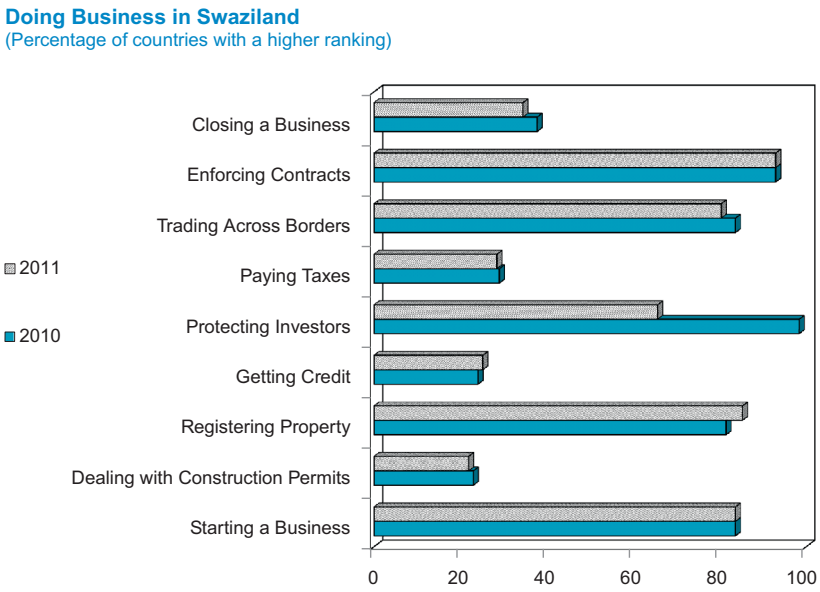
Table 3. Swaziland: Net Intersectoral Asset and Liability Positions, 2010

Issuer of liability (debtor) →	Public sector												Financial Sector						Nonfinancial Private Sector						Rest of the World		
	Central Bank			Central Government			State and Local Government			Public Nonfinancial Corporations			Other Depository Corporations			Other Financial Corporations			Nonfinancial Corporations			Other Resident Sectors			Nonresident		
↓ Holder of liability (creditor) ↓	A [1]	L	NP	A	L	NP	A	L	NP	A	L	NP	A	L	NP	A	L	NP	A	L	NP	A	L	NP	A	L	NP
													(Emalangeni billions)														
Central bank				2.3	0.0	2.3							0.6	0.0	0.6	0.0	0.0	0.0				0.0	0.0	0.0	0.0	4.0	-4.0
In domestic currency				2.3	0.0	2.3							0.6	0.0	0.6	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
In foreign currency				0.0		0.0																			0.0	4.0	-4.0
Central government	0.0	2.3	-2.3										0.6	0.5	0.1				0.9		0.9				2.8		2.8
In domestic currency	0.0	2.3	-2.3										0.6	0.5	0.1				0.9		0.9						
In foreign currency		0.0	0.0																						2.8		2.8
State and local government													0.0	0.1	-0.1												
In domestic currency													0.0	0.1	-0.1												
In foreign currency																											
Public nonfinancial corps.													0.2	0.6	-0.4												
In domestic currency													0.2	0.6	-0.4												
In foreign currency																											
Other depository corporations	0.0	0.6	-0.6	0.5	0.6	-0.1	0.1	0.0	0.1	0.6	0.2	0.4				0.8	0.5	0.3	4.2	3.2	0.9	2.3	2.9	-0.7	0.4	2.2	-1.8
In domestic currency	0.0	0.6	-0.6	0.5	0.6	-0.1	0.1	0.0	0.1	0.6	0.2	0.4				0.8	0.5	0.3	4.2	3.2	0.9	2.3	2.9	-0.7		0.0	0.0
In foreign currency																									0.4	2.2	-1.8
Other financial corporations	0.0	0.0	0.0										0.5	0.8	-0.3												
In domestic currency	0.0	0.0	0.0										0.5	0.8	-0.3												
In foreign currency																											
Nonfinancial corporations					0.9	-0.9							3.2	4.2	-0.9										10.2	3.4	6.8
In domestic currency					0.9	-0.9							3.2	4.2	-0.9												
In foreign currency																									10.2	3.4	6.8
Other resident sectors	0.0	0.0	0.0										2.9	2.3	0.7												
In domestic currency	0.0	0.0	0.0										2.9	2.3	0.7												
In foreign currency																											
Nonresidents	4.0	0.0	4.0		2.8	-2.8							2.2	0.4	1.8				3.4	10.2	-6.8						
In domestic currency	0.0	0.0	0.0										0.0		0.0												
In foreign currency	4.0	0.0	4.0		2.8	-2.8							2.2	0.4	1.8				3.4	10.2	-6.8						
													(Percent of GDP)														
Central bank				8.6	0.0	8.6							2.2	0.0	2.2	0.0	0.0	0.0				0.0	0.1	0.0	0.2	14.9	-14.8
In domestic currency				8.4	0.0	8.4							2.2	0.0	2.2	0.0	0.0	0.0				0.0	0.1	0.0	0.0	0.0	0.0
In foreign currency				0.2		0.2																			0.1	14.9	-14.8
Central government	0.0	8.6	-8.6										2.2	1.9	0.3				3.3		3.3				10.3		10.3
In domestic currency	0.0	8.4	-8.4										2.2	1.9	0.3				3.3		3.3						
In foreign currency		0.2	-0.2																						10.3		10.3
State and local government													0.0	0.4	-0.3												
In domestic currency													0.0	0.4	-0.3												
In foreign currency																											
Public nonfinancial corps.													0.6	2.1	-1.6												
In domestic currency													0.6	2.1	-1.6												
In foreign currency																											
Other depository corporations	0.0	2.2	-2.2	1.9	2.2	-0.3	0.4	0.0	0.3	2.1	0.6	1.6				3.1	1.9	1.2	15.4	12.0	3.4	8.4	10.9	-2.5	1.5	8.1	-6.6
In domestic currency	0.0	2.2	-2.2	1.9	2.2	-0.3	0.4	0.0	0.3	2.1	0.6	1.6				3.1	1.9	1.2	15.4	12.0	3.4	8.4	10.9	-2.5		0.0	0.0
In foreign currency																									1.5	8.1	-6.6
Other financial corporations	0.0	0.0	0.0										1.9	3.1	-1.2												
In domestic currency	0.0	0.0	0.0										1.9	3.1	-1.2												
In foreign currency																											
Nonfinancial corporations					3.3	-3.3							12.0	15.4	-3.4										37.8	12.7	25.1
In domestic currency					3.3	-3.3							12.0	15.4	-3.4												
In foreign currency																									37.8	12.7	25.1
Other resident sectors	0.1	0.0	0.0										10.9	8.4	2.5												
In domestic currency	0.1	0.0	0.0										10.9	8.4	2.5												
In foreign currency																											
Nonresidents	14.9	0.2	14.8		10.3	-10.3							8.1	1.5	6.6				12.7	37.8	-25.1						
In domestic currency	0.0	0.0	0.0										0.0		0.0												
In foreign currency	14.9	0.1	14.8		10.3	-10.3							8.1	1.5	6.6				12.7	37.8	-25.1						

Sources: Swaziland authorities, and IMF staff estimates and computations.

[1]A: Assets, L: Liabilities, NP: Net Position (A–L).

Figure 5. Swaziland: Doing Business Ranking, 2010–11



Source: World Bank, Doing Business Database.

strong direct inflows (FDI and portfolio) in the past, coming largely from South Africa. The level of arrears has created financial pressures on the corporate sector, which has started to reduce its economic activity.

The private sector is even more vulnerable to shocks because of lack of competitiveness. The domestic productive capacity is heavily dominated by the government (e.g., production of sugar, currently the main export good, comes from a state-owned enterprise). Thus, private enterprises are often dependent on government contracts, reinforcing their exposure to the public sector. Also, the business climate is weak (Figure 5). While the country has comparative advantages in agriculture, mining, and tourism, this potential is negatively affected by various impediments to business development. Finally, the country is faced with the highest incidence of HIV/AIDS in the world (26 percent of the adult population), which has led to a declining population, a reduced labor force, and loss of productivity.

C. Financial Sector: Exposure to Government Risks and Weaknesses in Supervision

Overall, the banking sector in Swaziland has shown good performance during the past five years (Table 4). All banks are well capitalized and have maintained strong risk-adjusted Capital Adequacy Ratios (CARs) over the years. The regulatory capital to risk-weighted assets ratio for the whole

Table 4. Swaziland: Banking System Financial Soundness Indicators, 2006–11

	2006 Dec.	2007 Dec.	2008 Dec.	2009 Dec.	2010 Dec.	2011 Mar.	2011 Jun.
Capital							
Regulatory capital to risk-weighted assets	26.3	23.6	33.8	26.3	20.1	23.9	20.4
Tier 1 capital to risk-weighted assets	19.5	20.7	18.1	17.1	20.4	21.8	18.5
Asset quality							
Nonperforming loans to total loans (both net of accrued interest on NPLs)	7.7	7.5	7.6	8.1	8.0	10.3	8.1
Nonperforming loans (net of provisions and accrued interest) to regulatory capital	33.5	32.8	35.3	35.0	16.8	33.5	29.5
Loan loss provisions to NPLs (net of accrued interest)						26.6	28.8
Earnings (profitability)							
Return on assets	2.9	1.9	4.0	2.4	3.3	2.3	4.4
Return on equity	21.2	14.8	22.7	14.4	19.4	25.3	37.6
Interest margin to gross income	53.4	76.0	59.2	58.2		67.1	67.5
Noninterest expenses to gross income	65.2	53.5	64.5	68.4	64.9	39.5	39.1
Liquidity							
Ratio of net loans to total deposits	91.1	97.1	88.1	78.6	74.9	76.6	81.7
Liquidity ratio	18.6	7.0	12.9	12.2	16.6	22.0	23.9
Share of FX deposits in total deposits				1.1	0.6	1.9	2.3

Source: FSI definitions based on IMF, *Compilation Guide on Financial Soundness Indicators*.

banking system stood at 20.4 percent at end-June 2011, a slight decrease compared with the level at end-December 2010. The CAR positions of the four banks range from 14.4 to 31.6 percent (end-June 2011), well above the minimum statutory requirement of 8 percent. In addition, banks are profitable and have maintained a strong position since 2006, with ratios for return on assets and return on equity above international standards.[5]

However, stress tests point to some underlying risks for the banking system in Swaziland (Box 3). Specifically, exchange rate risk, credit risk, and concentration risk could potentially pose a challenge to the banking system. The exchange rate risk would stem from a possible appreciation of the currency. In terms of credit risk, the main vulnerability lies in the fact that provisioning for certain categories of loans is not adequate. For the concentration risk, the vulnerability is embedded in the exposure of most banks to one or more large borrowers.

[5] It is generally considered that a ratio of return on assets above 2 and a ratio of return on equity above 20 indicates profitability.

Box 3. Stress Tests: Assumptions and Methodology

Credit Risk
The credit risk measures banking sector vulnerability to shocks related to an assumed weakening loan portfolio of all banks where 9 percent of all current loans will migrate to NPLs. In addition, an increase in NPLs is assumed where the asset quality of exiting NPLs will deteriorate. Specifically, substandard loans will become doubtful and doubtful loans will become bad.

Exchange Rate Risk
The exchange rate stress assesses different movements of the lilangeni against other major currencies and measures the impact of an exchange rate shock on the banks' capital position.[1]

Liquidity Risk
The liquidity stress test identifies the banks that would first experience problems meeting the demands of their depositors in the event of a systemic crisis.

Concentration Risk
The concentration risk assesses the exposure of the banking system to large borrowers and the effect that a failure of the largest borrower(s) would have on the CAR of the banking system.

[1] The net income effect of exchange rate risk is not analyzed, because examination of historic trends in banks' income from foreign exchange dealing suggests that this type of income is not influenced by the level of the exchange rate but rather by the buy-sell spreads.

In terms of exchange rate risk, the banking system is not directly vulnerable, owing to minimal foreign currency deposits, but the system is exposed to second-round effects. The NFA position of both commercial banks and the central bank at end-2010 was strongly positive. As such, banks are resilient to external shocks. However, some banks are particularly exposed to the government, directly through government debt or indirectly through civil servants and government suppliers. Although commercial banks have tried to reduce their direct exposure to government in 2011, the accumulation of arrears has led them to provide bridge financing to suppliers, increasing their indirect exposure. Overall, their exposure to government, including arrears financing, is equivalent to E 1½ billion (4½ percent of GDP) as of June 2011.

The banking system could be vulnerable to credit risk in the event of deterioration of the asset quality of NPLs and an increase in the number of NPLs. If the financial crisis deepens, it is likely that the loan portfolios of banks will weaken as well. Specifically, a number of loans in good standing

would become nonperforming. In addition, the asset quality of existing NPLs would deteriorate, substandard loans would become doubtful, and doubtful loans would become bad. Under these circumstances, the capital adequacy ratio of banks would deteriorate but remain above the statutory minimum.

The nature of liquidity constraints in the banking system can be considered temporary. On the one hand, the liquidity ratio indicates that liquid assets in the banking system only cover about 20 percent of liquid liabilities. Therefore, the banks would become illiquid quickly in the event of large deposit withdrawals. On the other hand, banks also hold considerable long-term assets abroad. In addition, even though the central bank does not have the necessary facilities to provide emergency liquidity, a liquidity injection from a parent bank could be sufficient in the event of a liquidity crisis.

In addition to the vulnerabilities identified in the stress tests, the government's dominance in the economy and the presence of a small number of large borrowers also present a risk to the banking system. A number of state-owned enterprises (SOEs) and small and medium-sized enterprises (SMEs) are heavily dependent on business from the government. Banks have so far experienced only a marginal increase in non-performing loans as a consequence of the fiscal crisis. However, when the private sector (corporate and household) does reach a point where the nonpayment of arrears results in bankruptcies, not only will banks be affected but the whole economy may face a significant recession. Timing of such an event is difficult to assess, because it relates largely to a systemic risk for the economy as a whole.

Insurance and retirement funds are liquid, well capitalized, and adequately supervised. Insurance and retirement funds are supervised and regulated by the Registrar of Insurance and Retirement Funds (RIRF).[6] The assets of retirement funds grew by 14 percent between 2009 and 2010.[7] In 2010, 28 percent of the retirement assets were invested in Swaziland—2 percent below the 30 percent required by legislation. At the same time, 62 percent was invested in cash and money market instruments via commercial banks. Therefore, the RIRF and the central bank are taking steps to retain more of these funds in the local economy. Overall, in 2010 retirement funds recorded gains of E 2.2 billion compared to losses of E 445 million in 2009. The long-term and short-term insurance sectors were also profitable

[6] The RIRF was established in November 2006 through the Insurance Act of 2005 and Retirement Funds Act of 2005.

[7] RIRF Annual Report 2010 available at http://www.rirf.co.sz/images/stories/docs/Registrar%20Full%20Report%202010.pdf

in 2010, recording a profit before tax of E 30 million and E 88 million, respectively.

Other nonbank financial institutions are a cause for concern because they have been growing rapidly without proper regulation and supervision. In particular, savings and credit cooperatives have become increasingly popular, and their numbers are growing. This is because loans from cooperatives are more accessible to the Swazi population and do not have appropriate risk-weighted safeguards. Because commercial banks are considered risk averse and reluctant to lend, cooperatives have become the preferred lender for civil servants in particular. Specific information on the lending portfolio of savings and credit cooperatives is not available. However, there is indirect evidence of serious vulnerabilities in the event of a shock to the economy. Because cooperatives are not currently regulated and supervised, it is possible for a person to obtain a loan from more than one institution and therefore be indebted for more than the amount allowed by existing regulations.

IV. Exchange Rate Assessment

As mentioned in Box 1, the lilangeni is pegged to the South African rand at parity under the Common Monetary Area (CMA) agreement. By law, both the lilangeni and the rand are legal tender in Swaziland. Assessing the level of the real exchange rate therefore has a specific dimension, because pegs are vulnerable to overvaluations. This vulnerability also causes concerns when deriving policy recommendations. In particular, overvalued pegs can be tackled through a number of policy channels, including public-wage restraint and structural policies aimed at improving productivity.

The assessment of Swaziland's real effective exchange rate (REER), using the IMF's CGER methodology,[8] suggests the REER is overvalued in the range of 19–33 percent at end-2011 (see Figure 6 for a summary of the results). The overvaluation could be reduced to 3–16 percent in the medium term if the authorities implement their FAR.

The three standard approaches used in the CGER methodology to assess Swaziland's exchange rate are (i) the macroeconomic balance approach, (ii) the equilibrium REER approach, and (iii) the external sustainability approach. All of the estimates indicate increased overvaluation compared to the assessment of 16–25 percent in the 2010 Article IV consultation (IMF, 2011b), reflecting the worsening fiscal crisis.[9]

[8] See Lee and others (2008) and Box 4 for a brief overview. Assessing exchange rates using the CGER methodology is a standard tool of IMF surveillance.

[9] Available at http://www.imf.org/external/pubs/cat/longres.aspx?sk=24589.0

Figure 6. Swaziland: Exchange Rate Assessment

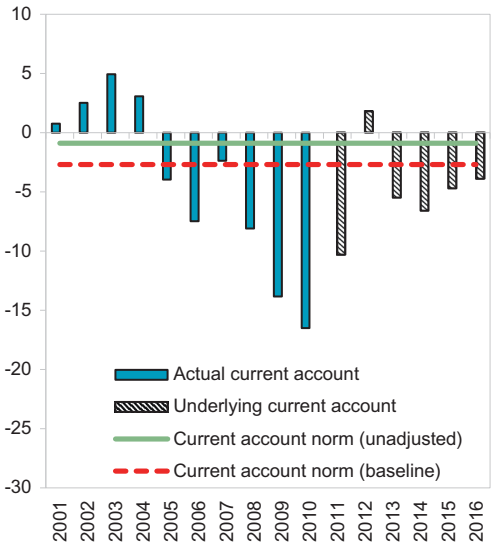
The real effective exchange rate is overvalued,...

Overvaluation of the Real Effective Exchange Rate
(Percent)

	Unchanged policies	Adjustment scenario
Overall	**19–33**	**3–16**
Macroeconomic balance approach	25.2	3.1
Equilibrium real effective exchange rate approach	18.9	16.1
External sustainability approach	29.8–32.5	11.8–14.5

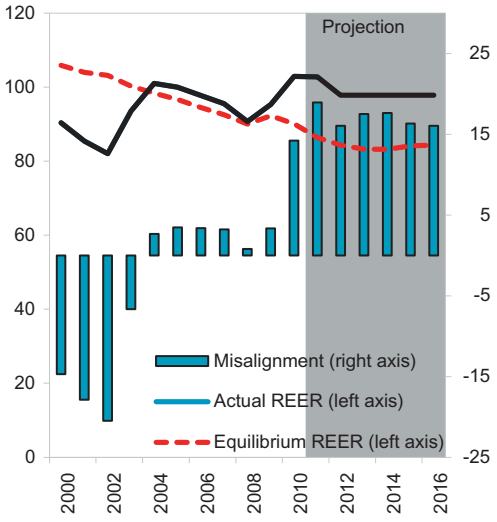
inconsistent with the sustainable current account balance,...

Macroeconomic balance approach



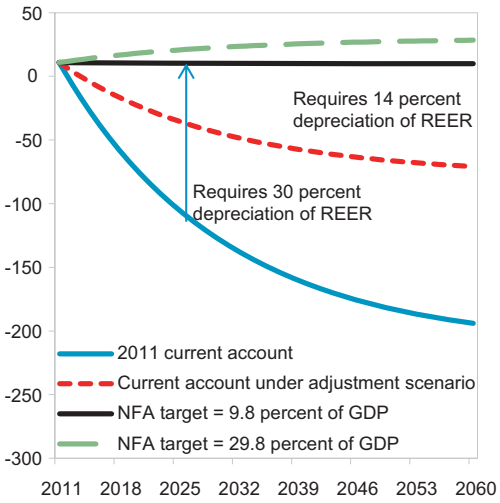
macroeconomic fundamentals,...

Equilibrium real effective exchange rate approach



and external sustainability.

External sustainability approach (Percent of GDP)



A. Macroeconomic Balance Approach

The macroeconomic balance approach suggests the REER is overvalued by about 25 percent in 2011. The projected current account deficit under the baseline scenario of about 10 percent of GDP is compared to the equilibrium current account deficit norm of 1 percent of GDP obtained from a panel

Box 4. Exchange Rate Assessment: Assumptions and Methodology[1]

The **macroeconomic balance approach** calculates the exchange rate adjustment that would close the gap between the current account balance projected over the medium term and an estimated equilibrium current account balance, or "current account norm." The norm is determined by the sustainable medium-term macroeconomic fundamentals, such as fiscal balance, demographics, oil balance, economic growth, and lagged current account.

The **equilibrium REER approach** directly estimates an equilibrium real exchange rate for a country as a function of medium-term fundamentals such as the NFA position, relative productivity differentials between the tradable and nontradable sectors, and the terms of trade.

The **external sustainability approach** calculates the exchange rate adjustment that would bring the projected current account balance in line with its NFA-stabilizing level. The norm NFA position is often calibrated to the most recent observation for the country.

[1] See Lee and others (2008) and Vitek (2011).

regression.[10] With the elasticity of the current account balance with respect to the real exchange rate of –0.38,[11] the real exchange rate would need to depreciate by about 25 percent to close the external current account gap.

If the authorities' FAR is implemented, the REER would need to depreciate by about 3 percent to close the current account gap over the medium term. Because the large domestic imbalances caused by the current fiscal crisis are expected to be eliminated over the medium term, the underlying current account deficit for 2016 would be reduced to about 4 percent of GDP, from about 16.5 percent in 2010. In parallel, the current norm would be at about 3 percent of GDP, implying a much lower current account gap and therefore a reduced overvaluation.

B. Equilibrium Real Effective Exchange Rate Approach

The equilibrium real effective exchange rate approach suggests that the REER will be overvalued by about 19 percent at end-2011. This approach

[10] See Vitek (2011) and Aydin (2010). The estimation employs a panel data set covering 184 economies from 1973 through 2010 and considers the following macroeconomic variables: fiscal balance, old-age dependency, population growth, per capita income, growth, oil balance, and initial NFA.

[11] The elasticity is calculated using Swaziland's export and import shares in GDP and export and import volume elasticities derived in Isard and Faruqee (1998).

uses a panel regression to estimate the deviation of the REER from the equilibrium level implied by fundamentals.[12] Compared to the assessment in the 2010 Article IV consultation, the overvaluation has increased owing to low productivity, lower government consumption, and a worsening net foreign asset position.

Over the medium term, the overvaluation is expected to remain in the 16–18 percent range, assuming the actual REER stays at the current level. The equilibrium REER is expected to continue deteriorating given the continued worsening of fundamentals. However, with heightened uncertainties about the global economy, the actual REER is difficult to forecast over the medium term, and such analysis is beyond the scope of this approach.

C. External Sustainability Approach

The external sustainability approach finds that the 2011 underlying current account deficit is unsustainable, and a 30–33 percent depreciation of the REER is necessary to sustain the NFA position. This approach calculates the current account balance required to stabilize the NFA position at a given level. In light of significant and continued reductions in Swaziland's NFA in recent years, the assessment is made to maintain the NFA position at its current level (9.8 percent of GDP at end-2010) and its 2005–10 average level (29.9 percent of GDP). With projected nominal growth of 5.3 percent, the 2011 current account deficit of 10.7 percent of GDP would result in a long-run NFA position equal to –210 percent of GDP, which is not sustainable. Rather, to achieve the target levels of NFA, the current account balance should be 0.5 percent or 1.6 percent of GDP, respectively. To close the gaps, the REER needs to depreciate by between 30 and 33 percent.

The current account deficit under the authorities' FAR indicates that a depreciation of 12–15 percent is needed for the current account balance to be consistent with the target NFA levels. The medium-term current account deficit is projected at 3.9 percent of GDP, which still falls short of the current account surplus norm of 0.5 percent or 1.6 percent of GDP to achieve the NFA targets. The REER would need to depreciate by 12 percent to sustain the 2010 NFA position and by 15 percent to sustain the 2005–10 NFA position.

[12] See Vitek (2011). The following fundamentals are considered: terms of trade, relative productivity, government consumption, and net foreign assets. The estimated coefficients are close to those reported in Aydin (2010) for sub-Saharan Africa.

D. Improving Competitiveness

Swaziland's competitiveness is undermined by the high cost of doing business. Swaziland ranks among the lowest in the World Bank Doing Business indicators, even compared to other CMA member countries. Investor protection was strengthened in 2010, allowing Swaziland's overall rank to improve from 126th out of 183 countries in 2010 to 118th in 2011. However, Swaziland is still ranked in the bottom third in starting a business, registering property, enforcing contracts, protecting investors, and trading across borders. The survey highlights the need for structural improvements in these areas.

V. Reserve Adequacy Assessment

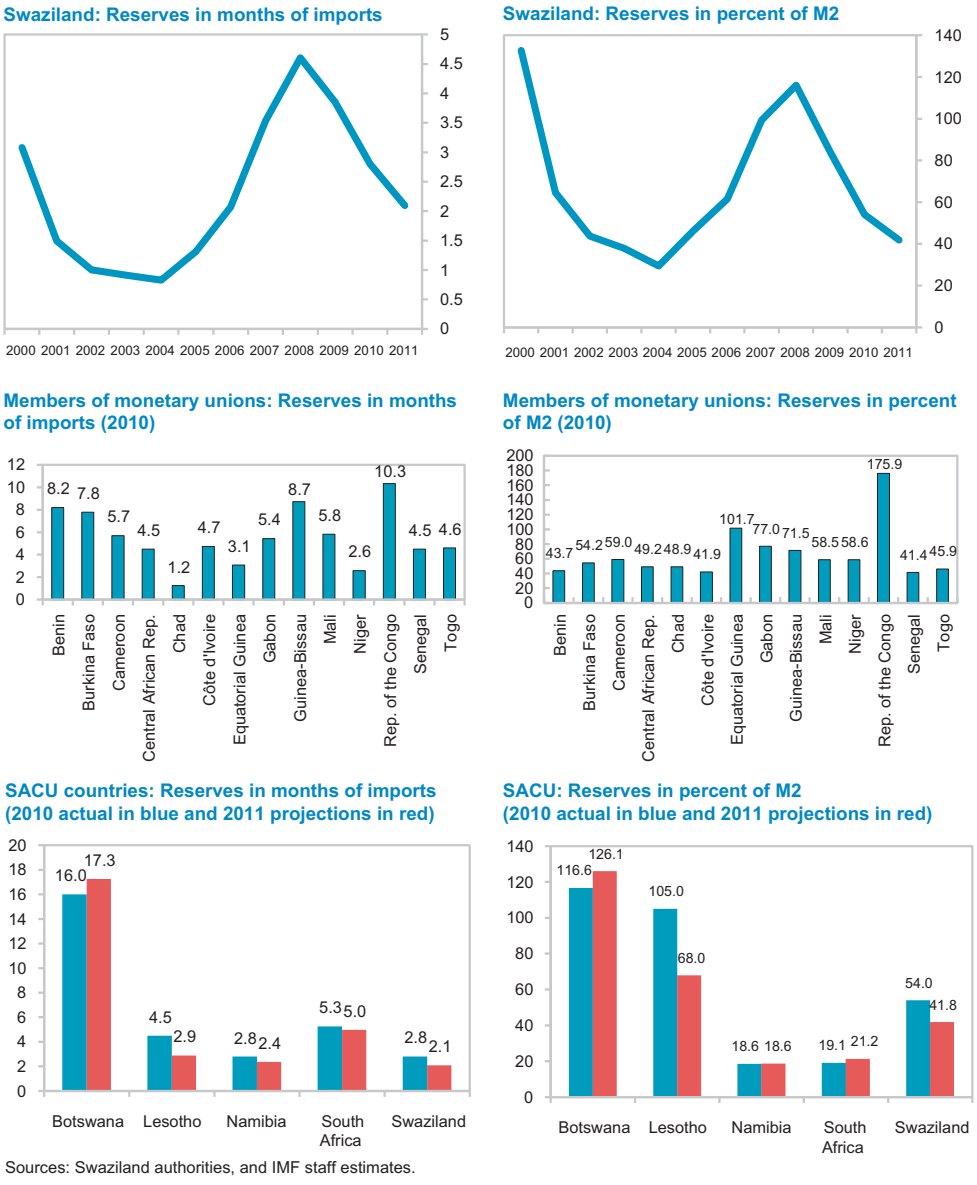
The gross official reserves of the Central Bank of Swaziland have been on a downward trend since early 2010 (Figure 7). This decline has been driven by the fiscal crisis, the inability of the government to rein in expenditure, and the lack of financing. As a result, the government has continued to make recourse to central bank financing, with a corresponding drain on the gross official reserves of the central bank. This clearly cannot continue without jeopardizing external stability. Under these conditions, it is important to define the appropriate level of gross official reserves that would be deemed adequate to maintain external stability.

A. Standard Measures of Reserve Adequacy

A few standard measures are commonly used to assess reserve adequacy: the gross official reserves as a ratio of months of imports, stock of short-term debt, stock of reserve money, and stock of broad money. The ratio of reserves to GDP is also used as a measure in some cases but does not have a theoretical or empirical underpinning.

The most widely used rule of thumb is that a country with a fixed exchange rate should maintain reserves equal to at least three prospective months of imports of goods and services. That is, if all balance of payments inflows cease, a country would have enough gross official reserves available to pay for three months of imports. Swaziland has been below this benchmark since November 2010 and stood at 2.4 months of import cover at end-November 2011. Compared with other member countries of the Southern Africa Customs Union (SACU) and member countries of monetary unions in Africa (except Chad), Swaziland has the lowest level of reserves as a measure of import cover.

Figure 7. Swaziland: Reserves Compared with Other Countries



Sources: Swaziland authorities, and IMF staff estimates.

The level of gross official reserves to short-term debt measures the adequacy of reserves against debt service outflows over the next 12 months. For Swaziland, data on short-term debt are unavailable. It is therefore not possible to measure the adequacy of reserves against this measure.

The ratio of gross official reserves to base or reserve money (typically M0) gives a measure of the backing of currency in circulation. This measure is usually most relevant in currency boards, where the law requires the central bank to maintain a high percentage of reserves (60–100 percent) to be freely

available to be exchanged for domestic currency in circulation. For Swaziland, the ratio of gross official reserves to reserve money at end-September 2011 was high (about 300 percent), and therefore not subject to significant concerns.

The reserve coverage of broad money (typically M2) is another popular measure. The metric is intended to capture the risk of capital flight, and a ratio of 20 percent is commonly used as the minimum threshold for countries with a fixed exchange rate regime. Even though this indicator has been at about 40 percent for Swaziland, i.e., well above the suggested minimum level for Swaziland, it has been falling steadily, raising concerns about possible pressures arising from currency substitution or capital outflows. Compared with other countries in SACU and in the rest of Africa, Swaziland measures well according to this metric.

B. A Model-Based Approach to Reserve Adequacy

In addition to the traditional measures above, several models have been presented in the recent literature to derive the adequate level of reserves through the optimization of the net benefits of holding reserves. Typically, these models postulate the benefits of holding reserves (i.e., reducing the probability of a crisis and smoothing consumption during crisis) and compare them to the costs of holding reserves in terms of foregone investment in the economy. The model developed by Caballero and Panageas (2004) focuses on the real costs of a sudden stop in capital flows while the model by Garcia and Soto (2004) assumes that reserves affect the probability of a crisis and its costs. Jeanne and Rancière (2006) assume a small open economy where risk-averse policymakers choose a level of reserves that maximizes welfare in the event of a sudden stop in capital inflows.

A new model-based approach has also been developed by the IMF to derive the optimal reserve holdings.[13] It has been observed that since 2002 emerging market and low-income countries have outpaced the traditional reserve adequacy metrics. Subsequently, during shocks, these reserves have provided a useful cushion against economic crises, including the current global economic crisis. Furthermore, the growth in reserves has been driven by precautionary motives, even though those motives have been different across countries.

This new model-based approach provides a framework for optimal reserves. For emerging market (EM) economies, a two-stage methodology is employed. In the first stage, the relative riskiness of different potential losses in foreign reserves is estimated. Specifically, the analysis estimates the

[13] See IMF (2011a) and Box 5.

Box 5. New Approach for Estimating Reserve Adequacy[1]

A two-stage approach is employed:

First Stage:
The relative riskiness of different potential drains on reserves is estimated. This is done based on observed distributions of outflows from each source during periods of exchange market pressure. Subsequently, a risk-weighted liability shock is constructed. Estimates of relative risk weights are based primarily on tail event outflows associated with periods of exchange market pressure. Identified drains during such events are computed as annual percentage losses of export income, short-term debt, other portfolio liabilities, and liquid domestic assets.

Second Stage:
Based on the risk-weighted liability shock calculated in the first stage, the second stage estimates the adequate reserve coverage a country should hold. Countries with fixed and flexible exchange rate regimes are assessed separately.

[1] Model developed in IMF (2011a).

potential outflows during periods of exchange market pressure, where the specific sources of loss identified are (i) potential loss of export earnings from a drop in external demand or a terms-of-trade shock; (ii) external liability shock to short-term debt and medium- and long-term debt and equity liabilities; and (iii) capital flight risk. In the second stage, the reserve coverage a country should hold is estimated based on the metric obtained from the first stage.

The approach provides a simple metric that summarizes risk-weighted measures of the pressure on reserves. For countries with a fixed exchange rate regime, it proposes to use the following risk weights, based on tail event outflows during exchange market pressure periods: 10 percent of export income, 30 percent of short-term debt, 15 percent of other portfolio liabilities, and 10 percent of broad money, which proxies the liquid domestic assets. Subsequently, the implied optimal reserve level for Swaziland would be approximately E 5.1 billion in order to maintain external stability against the pressure of the risk-weighted sum of export income (E 16.6 billion), short-term debt (E 2.5 billion), other portfolio liabilities (E 1.5 billion), and broad money (E 8.8 billion).

In the case of Swaziland, country-specific factors would also have to be considered. Specifically, the model is developed for emerging market economies; Swaziland lacks access to international capital markets, is

Table 5. Swaziland: Optimal Level of Reserves[1]

	2011	
	Emalangeni billions	Percent of GDP
Traditional Metrics		
3 months' imports	5.4	18.6
100 percent of STD	2.5	8.7
20 percent of M2	1.8	6.2
Model-Based Metric	5.1	17.7
Gross Official Reserves, end-Nov. 2011	4.3	14.8

Source: IMF staff calculations.
[1] Information for Lesotho is not available to calculate the new metric.

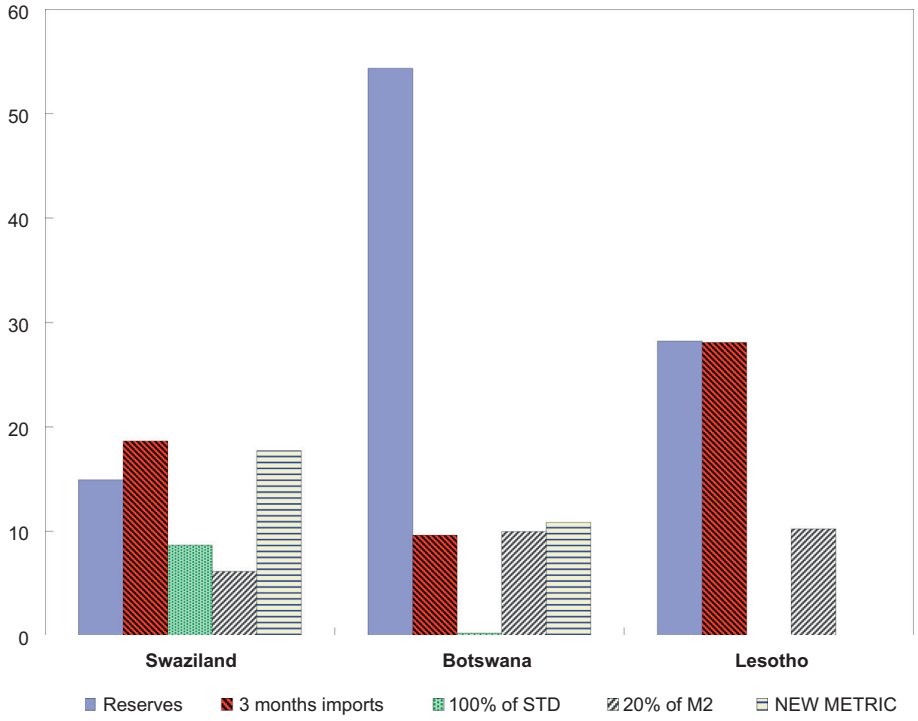
highly dependent on SACU revenue, and has an undiversified export base. Moreover, because of the fixed exchange rate regime, gross official reserves are at risk as a drawdown on government cash balances at the central bank, implying a 1-to-1 reduction in reserves. Swaziland is also highly exposed to terms-of-trade shocks because it is an oil importer as well as a sugar exporter. In addition, it has a fully open capital account with South Africa thus exposing it to sudden capital outflows. Lastly, as the lender of last resort, the central bank should plan ahead for possible liquidity needs in the banking sector.

The analysis under the new approach indicates that Swaziland does not currently hold an adequate level of gross official reserves. Specifically, the analysis indicates that under the assumptions described above, the optimal level of reserves is 17.7 percent of GDP (about E 5.1 billion for 2011; Table 5). Currently, gross official reserves are below the recommended optimal level at E 4.3 billion, equivalent to 14.8 percent of GDP.

Compared to other emerging market economies with a fixed exchange rate, the new metric seems to suggest an inadequate level of reserves. The suggested adequate level of reserves for an emerging economy with a fixed exchange rate for the countries used in the example is between 12 and 25 percent of GDP (Figure 8). However, it would have to be taken under consideration that the new metric is calculated based on the external environment, current account risk, capital account risk, and cost of holding reserves which vary across economies. In addition, except for Botswana, data are not available for the countries in the Southern African region to calculate and compare the new metric.

Figure 8. Reserves Adequacy, New and Traditional Metrics, 2011[1]

(Percent of GDP)



[1]Information for Lesotho is not available to calculate the new metric.

VI. Conclusion

Several lessons can be learned from the analysis of Swaziland's macroeconomic vulnerabilities:

- Public debt and external debt are unsustainable under current policies, calling for policies aimed at restoring fiscal sustainability and improving competitiveness of the economy.

- Cross-sectoral vulnerabilities underscore how fiscal risks translate into vulnerabilities for the corporate sector (arrears, relatively weak business climate, liabilities to the rest of the world) and for the financial sector (direct exposure to government, exposure to government suppliers and civil servants). Additionally, the banking sector is increasingly vulnerable because of rising liquidity pressures associated with the fiscal crisis and an unsupervised non-bank financial sector lending practices.

- The exchange rate assessment underscores how the real exchange rate is significantly overvalued, confirming the external vulnerabilities identified in the debt sustainability analysis.

- Reserves are not at an adequate level and would need to be increased further to protect Swaziland against adverse external shocks.

The optimal policy remains to reduce public expenditure, notably the wage bill, thereby reducing domestic absorption and the real exchange rate overvaluation. A few elements can already be identified in the design of an optimal fiscal adjustment:

- Reducing the wage bill, notably through real wage cuts, is essential to improving the competitiveness of the private sector.
- The overvaluation of the real exchange rate cannot be addressed only through real wage adjustments. Indeed, a large part of private sector strengthening would need to come from structural policies geared toward liberalizing markets and providing a more attractive business environment to both domestic and foreign investors.
- Financial sector supervision needs further strengthening, which would require greater allocation of resources for such a critical function.
- Clearing arrears in a timely manner would be essential to addressing vulnerabilities in the corporate sector, reducing the indirect weight they exert on banks' liquidity.

References

Allen, M., C. Rosenberg, C. Keller, B. Setser, and N. Roubini, 2002, "A Balance Sheet Approach of Financial Crisis," IMF Working Paper 02/210 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2002/wp02210.pdf

Aydin, B., 2010, "Exchange Rate Assessment for Sub-Saharan Economies," IMF Working Paper 10/162 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2010/wp10162.pdf

Basdevant, O., D. Benicio, B. Mircheva, J. Mongardini, G. Verdier, S. Yang, and L.-F. Zanna, 2011, "The Design of Fiscal Adjustment Strategies in Botswana, Lesotho, Namibia, and Swaziland," IMF Working Paper 11/266 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2011/wp11266.pdf

Caballero, R., and S. Panageas, 2004, "Contingent Reserves Management: An Applied Framework," NBER Working Paper No. 10786 (Cambridge: Mass.: National Bureau of Economic Research).

Cole, H., and P. Kehoe, 1996, "A Self-Fulfilling Model of Mexico's 1994–1995 Debt Crisis," *Journal of International Economics*, Vol. 41, November, pp. 309–330.

Drazen, A., and P. Masson, 1994, "Credibility of Policies Versus Credibility of Policymakers," *Quarterly Journal of Economics*, Vol. 59, pp. 735–54.

Flood, R., and P. Garber, 1984, "Collapsing Exchange Rate Regimes: Some Linear Examples," *Journal of International Economics*, Vol. 17, pp. 1–13.

Garcia, P., and C. Soto, 2004, "Large Holdings of International Reserves: Are They Worth It?" Central Bank of Chile Working Papers No. 299, December.

IMF, 2011a, "Assessing Reserve Adequacy," IMF Policy Paper (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/np/pp/eng/2011/021411b.pdf

IMF, 2011b, "Kingdom of Swaziland: 2010 Article IV Consultation," IMF Country Report 11/25. Available via the Internet: http://www.imf.org/external/pubs/ft/scr/2011/cr1125.pdf

Isard, P., and H. Faruqee, 1998, "Exchange Rate Assessment: Extensions of the Macroeconomic Balance Approach," IMF Occasional Paper 167 (Washington: International Monetary Fund).

Jeanne, O., and R. Rancière, 2006, "The Optimal Level of Reserves for Emerging Markets: Formulas and Applications," IMF Working Paper 06/229 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2006/wp06229.pdf

Krugman, P., 1979, "A Model of Balance of Payments Crises," *Journal of Money, Credit and Banking*, Vol. 11, pp. 311–325.

Lee, J., G. Milesi-Ferretti, J. Ostry, A. Prati, and L. Ricci, 2008, "Exchange Rate Assessments: CGER Methodologies," IMF Occasional Paper 261 (Washington: International Monetary Fund).

Manasse, P., N. Roubini, and A. Schimmelpfennig, 2003, "Predicting Sovereign Debt Crises," IMF Working Paper 03/221 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2003/wp03221.pdf

Mathisen, J., and A. Pellechio, 2006, "Using the Balance Sheet Approach in Surveillance: Framework, Data Sources and Data Availability," IMF Working Paper 06/100 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2006/wp06100.pdf

Mongardini, J., D. Benicio, T. Fontaine, G. Pastor, and G. Verdier, 2011, "In the Wake of the Global Economic Crisis: Adjusting to Lower Revenue of the Southern African Customs Union in Botswana, Lesotho, Namibia, and Swaziland," IMF African Department Paper 11/1 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/dp/2011/afr1101.pdf.

Obstfeld, M., 1994, "The Logic of Currency Crises," *Cahiers Economiques et Monétaires* (Banque de France), Vol. 43, pp. 189–213.

Reinhart, C., K. Rogoff, and M. Savastano, 2003,"Debt Intolerance," in William Brainard and George Perry, eds., *Brookings Papers on Economic Activity*, No. 1, pp. 1–74. Washington, DC: Brookings.

Rosenberg, C., I. Halikias, B. House, C. Keller, J. Nystedt, A. Pitt, and B. Setser, 2005, "Debt-Related Vulnerabilities and Financial Crises," IMF Occasional Paper 240 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/External/Pubs/NFT/Op/240/op240.pdf

Vitek, F., 2011, "Exchange Rate Assessment Tools for Advanced, Emerging, and Developing Economies," unpublished (Washington: International Monetary Fund).

Wang, J.-Y., I. Masha, K. Shirono, and L. Harris, 2007, "The Common Monetary Area in Southern Africa: Shocks, Adjustment, and Policy Challenges," IMF Working Paper 07/184 (Washington: International Monetary Fund). Available via the Internet: http://www.imf.org/external/pubs/ft/wp/2007/wp07158.pdf

Macroeconomic Vulnerabilities Stemming from the Global Economic Crisis: The Case of Swaziland