INTERNATIONAL MONETARY FUND

CAMBODIA

STAFF REPORT FOR THE 2012 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS[1]

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Prepared by the staffs of the International Monetary Fund (IMF) and the International Development Association (IDA).

This Debt Sustainability Analysis (DSA) shows that Cambodia's debt distress rating remains low under the baseline scenario. However, under an alternative scenario of limited reform progress, the scope for absorbing risk is substantially reduced. This underscores the need for sustaining strong growth, pursuing fiscal consolidation and mobilizing revenue, and improving debt and contingent liability management.

1. **This DSA incorporates the following updates relative to the previous one:** The macroeconomic assumptions for the baseline scenario are broadly similar to those in last year's DSA, while debt-to-GDP ratio at end-2011 was slightly higher due to larger disbursement of bilateral debt. The rating of Cambodia's policies and institutions remains unchanged at "medium performer," but the discount rate is revised to 3 percent from 4 percent last year, reflecting the decline of long-term Commercial Interest Reference Rates over the past few years.[2]

2. **The results show that Cambodia's risk of debt distress remains low** as debt burden indicators under the baseline scenario do not breach their relevant thresholds. Under an alternative scenario of a limited reform progress, however, the indicator would breach the threshold, showing a lower scope for absorbing risks.

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[1] This DSA has been prepared jointly by IMF and World Bank staffs and in consultation with the Asian Development Bank (AsDB), using the debt sustainability framework for low-income countries approved by the Boards of both institutions.

[2] Cambodia's policies and institutions, as measured by the World Bank's Country Policy and Institutional Assessment, continue to be classified as "medium performer." The relevant indicative thresholds, applicable to public and publicly guaranteed external debt, for this category are 40 percent for the net present value (NPV) of debt-to-GDP ratio, 150 percent for the NPV of debt-to-exports ratio, 250 percent for the NPV of debt-to-revenue ratio, 20 percent for the debt service-to-exports ratio, and 30 percent for the debt service-to-revenue ratio.

CAMBODIA'S PUBLIC DEBT

3. At end-2011, the stock of Cambodia's external public debt, including arrears, stood at around US$3.8 billion or 30 percent of GDP (24 percent in NPV terms). The debt-to-GDP ratio has increased from 27 percent in 2008, partly reflecting greater external fiscal financing during the economic slowdown in 2009 and a continuation of donor-financed development spending above precrisis levels in 2010 and 2011.

4. Multilateral creditors continue to hold a substantial amount of Cambodia's external debt. However, their share in total debt has declined from 50 percent in 2009 to 40 percent in 2011 as a result of larger disbursement of bilateral debt during 2010–11. China remains the largest bilateral creditor, contributing to 40 percent of the total bilateral debt stock and 80 percent of bilateral debt disbursement during the past two years. In 1995, Cambodia concluded Paris Club agreements with France, Germany, Italy, and Japan. However, Cambodia remains in arrears to the Russian Federation and the United States (about 20 percent of total debt or 6 percent of GDP), and the status of negotiations of these arrears has remained unchanged since the last DSA. Cambodia is not servicing its debt with these two creditors, with efforts needed to conclude agreements under the Paris Club framework. Since prospects for resolution remain unclear, this DSA assumes no debt restructuring, with arrears continuing to build up over the projection period.

5. Cambodia has virtually no domestic public debt. There is a small amount of bonds (US$4 million) issued in the early 2000s and some old claims on the government (half percent of GDP, with no interest) that were carried over from the 1990s and continue to be recorded in the monetary survey.

6. In early 2012, Cambodia adopted a new debt management strategy, aimed at managing debt risks, coordinating and implementing debt management policies, and developing debt management capacity. It also includes a DSA that considers two potential higher borrowing scenarios in order to highlight the sustainability implications of deviating from the government's commitment to medium-term fiscal consolidation as outlined in the accompanying staff report. The first scenario assumes new concessional loan disbursement of SDR 400–700 million annually during 2011–18, and as a result, the debt distress would rise to medium risk. The second scenario assumes an annual disbursement of SDR 400–800 million and the debt distress would further increase to high risk.[3] The results of these two scenarios are consistent with the alternative scenario in last year's joint IMF-World Bank DSA, which showed that larger borrowing (up to US$880 million annually, twice that under the baseline) would lower the debt distress rating to medium risk. The authorities' debt strategy also emphasizes the importance of monitoring contingent liabilities, including those related to power generation and distribution projects that are being developed under the public-private partnership (PPP).

[3] The scenarios do not assume a break in past trends of funding parameters, including degree of concessionality, duration, currency composition and type of official lender.

MACROECONOMIC FRAMEWORK

7. The macroeconomic framework underlying the baseline scenario remains broadly in line with the previous DSA.

- **Growth and inflation:** Despite the global slowdown, growth has been holding up, driven by robust garment exports, particularly to the European Union, strong tourism activities, and a recovering real estate sector. Real GDP is projected to grow 6½ percent in 2012, a slight moderation from last year, but would reach its potential of about 7½ percent by 2017.[4] Apart from a gradual improvement in the global economy, this critically depends on reforms to upgrade infrastructure and promote economic diversification, as well as enhance public sector revenue and service delivery. Despite the recent increase in global food prices, inflation would stay at 3–4 percent during 2012–13. It is expected to average 3 percent over the medium term, in line with the authorities' informal target and partner countries' medium-term inflation performance.

- **External stability:** The current account deficit including official transfers is projected to peak at 10 percent of GDP in 2012, reflecting moderating exports and large imports related to the power generation projects, but the deficit remains fully financed by FDI and official loans. Over the medium term, the deficit is projected to narrow to 5½ percent of GDP, driven by robust export growth and slower import growth after the completion of large power-generation projects. Gross official reserves are projected to stay comfortably at more than four months of prospective imports. In line with staffs' recommendation of gradual medium-term fiscal consolidation, external debt disbursement is projected to average US$500 million (2½ percent of GDP) annually during 2012–17, mostly concessional, although the grant elements of some bilateral debts are slightly less than 35 percent.

Cambodia: Macroeconomic Framework, 2011–32, Baseline Scenario

	2011	2012	2013	2014	2015	2016	2017	2013–17	2018–22	2023–32
	Est.	Proj.								
Output and prices (percent change)										
GDP growth	7.1	6.5	6.7	7.2	7.4	7.4	7.5	7.2	7.5	7.5
Consumer prices (end-year)	4.9	3.4	4.6	4.0	3.0	3.0	3.0	3.5	3.0	3.0
Public finance (GFSM 2001 presentation, in percent of GDP)										
Revenue	15.6	16.2	16.6	17.2	17.4	17.6	18.0	17.4	18.1	18.6
Domestic revenue	12.3	13.2	13.7	14.2	14.7	15.2	15.8	14.7	16.7	17.9
Grants	3.2	3.0	2.9	2.9	2.6	2.4	2.2	2.6	1.5	0.7
Total expenditure	19.6	19.4	19.4	19.4	18.9	18.6	18.6	19.0	18.9	19.2
Net lending (+)/borrowing(-)	-4.1	-3.2	-2.7	-2.2	-1.5	-1.0	-0.6	-1.6	-0.7	-0.6
Balance of payments (in percent of GDP, unless otherwise indicated)										
Current account balance (including transfers)	-8.1	-10.0	-9.9	-7.7	-7.1	-6.2	-5.6	-7.3	-6.2	-5.7
Foreign direct investment	11.5	10.5	10.2	7.9	7.3	7.2	7.2	8.0	7.0	7.0
External loans	4.2	3.3	3.1	2.9	2.6	2.4	2.2	2.6	2.3	1.9
Gross official reserves (in months of next year's imports)	3.6	4.0	4.0	4.1	4.1	4.2	4.3	4.1	4.2	4.1

Sources: Cambodian authorities; and IMF staff estimates and projections.

- **Fiscal sustainability:** Revenue performance has improved in 2012 and the progress of fiscal consolidation is on track, although the government fiscal buffers remain limited. Domestic revenue is projected to increase by ½ percent of GDP annually over the medium term in line with the authorities' goal under the Public Financial Management Reform Program. Medium-term fiscal

[4] The assumption on potential growth is based on Rungcharoenkitkul (2011), "Modeling with Limited Data: Estimating Potential Growth in Cambodia," IMF Working Paper 12/96, that was also used in last year's DSA.

consolidation is anchored by a rebuilding of government deposits and maintenance of long-term fiscal debt sustainability, while striking a careful balance with providing resources for Cambodia's vast development needs against an expected gradual decline of concessional external funds.

8. **The alternative scenario assumes limited progress in structural and fiscal reforms.** Slow progress in improving the business and investment climate would reduce FDI and lower export growth, and as a result, real GDP growth would stay flat at around 6 percent. However, the overall impact on the current account and the balance of payment is minimal as import growth would also be lower. At the same time, efforts at greater revenue mobilization would remain limited or suffer delays, and domestic revenue collection would stay flat in terms of GDP over the medium term before gradually improving in the long run. Lower revenue collection would imply a greater reliance on foreign-financed capital spending, in which case external debt disbursement would average around 3¾ percent of GDP annually over the medium term, compared to slightly more than 2½ percent of GDP in the baseline scenario.

Cambodia: Macroeconomic Framework 2013-32, Limited Reform Progress Scenario

	2013–17	2018–22	2023–32
GDP growth	6.2	5.9	6.0
Public finance (GFSM 2001, percent of GDP)			
Revenue	16.3	16.6	17.6
Expenditure	19.1	19.1	19.0
Net lending (+)/borrowing(-)	-2.8	-2.6	-1.3
Balance of payments (percent of GDP)			
Current account balance (including transfers)	-8.3	-7.2	-4.2
Foreign direct investment	7.3	5.2	3.9
External loans	3.8	3.8	2.2

Sources: Cambodian authorities; and IMF staff estimates and projections.

EXTERNAL AND PUBLIC DEBT SUSTAINABILITY

9. **The external DSA under the baseline macroeconomic outlook indicates that Cambodia's risk of debt distress remains low** (Figure 1, Tables 1a and 1b). The PV of debt-to-GDP, debt-to-exports, and debt-to-revenue ratios are expected to decline over the 20-year projection period and remain below the respective indicative thresholds. The debt service-to-exports and debt service-to-revenue ratios would also stay well below the thresholds throughout the projection period partly due to the concessionality of debts. The standard stress tests also do not reveal any serious vulnerability, although the debt-to-revenue ratio appears sensitive to exchange rate and export shocks, highlighting the importance of raising revenue collections.

10. **The public DSA closely tracts the external debt sustainability given the small amount of domestic public debt** (Figure 2 and Tables 2a and 2b). The PV of public debt-to-GDP ratio and the public debt service-to-revenue ratio would decline gradually over the long term, and the debt service-to-revenue ratio would remain low in most scenarios for the entire projection period. Consistent with the medium-term fiscal objective of building government fiscal buffers, Cambodia is not expected to develop a market for domestic government debt securities in the foreseeable future.

11. **Public debt sustainability continues to be vulnerable to a lack of fiscal consolidation and a permanent growth shock.** If the primary balance remains unchanged at the 2012 level, the PV of public debt-to-GDP and debt-to-revenue ratios would continue to increase, reaching about 35 percent

and 180 percent, respectively, in the long run. Under a permanent growth shock, if real GDP growth is one standard deviation lower than the baseline, the ratios of public debt to GDP and revenue would also continue to increase.

12. Under the alternative scenario of limited reform progress, Cambodia could lose its low debt distress rating (Figures 3 and 4 and Tables 3a and 3b). The PV of debt in terms of GDP, revenue, and exports would increase slightly over the next decade as a result of greater disbursement of debt to provide adequate financing for development needs. The standard tests reveal that the PV of debt-to-revenue and debt-to-GDP ratios would breach the relevant thresholds as a result of exchange rate shocks. Apart from reducing Cambodia's ability to absorb shocks, the scenario underscores the importance of mobilizing domestic revenue as planned. While the breach would seem minimal, it should be noted that tougher financing conditions with a lower grant element, albeit difficult to quantify ex ante, would likely ensue, which would erode debt sustainability further. Moreover, the alternative scenario does not assume any contingent liability materializing. However, the return to sustainable debt levels would become more difficult if the following contingent liabilities, which tend to correlate with shocks under the bound tests, were triggered:

- First, total investment of the power generation and distribution projects under PPPs is estimated at about 50 percent of GDP, and if for any reason problems arose potentially leading to a total loss of investment costs, substantial liabilities would be added to the debt stock.[5]
- Second, a banking crisis that could result from a growth slowdown, for a country with Cambodia's financial depths could typically add about 10 percent of GDP to public debt.[6]

THE AUTHORITIES' VIEW

13. The authorities broadly agreed with the overall results of the DSA. They indicated that they have used more conservative assumptions on economic growth and fiscal revenue in their debt analysis to ensure prudent management and disbursement of new debt. The authorities also reiterated that new borrowing would be prioritized for investment sectors with a high growth and social impact (e.g., roads, bridges, ports, and irrigation), and that they would continue to monitor the concessionality of new loans. The authorities reported that they are making progress in monitoring the contingent liability related to power generation and distribution projects by improving information sharing between agencies.

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[5] For example, if only one in ten projects fails, an average 5 percent of GDP would be added to the debt stock. Given network externalities, one failure could trigger further failures and hamper growth, thus setting in motion a vicious cycle of eroding debt sustainability.

[6] See for example Laeven and Valencia (2010) who show that the median direct fiscal cost of banking crisis in emerging market economies is 11.5 percent of GDP.

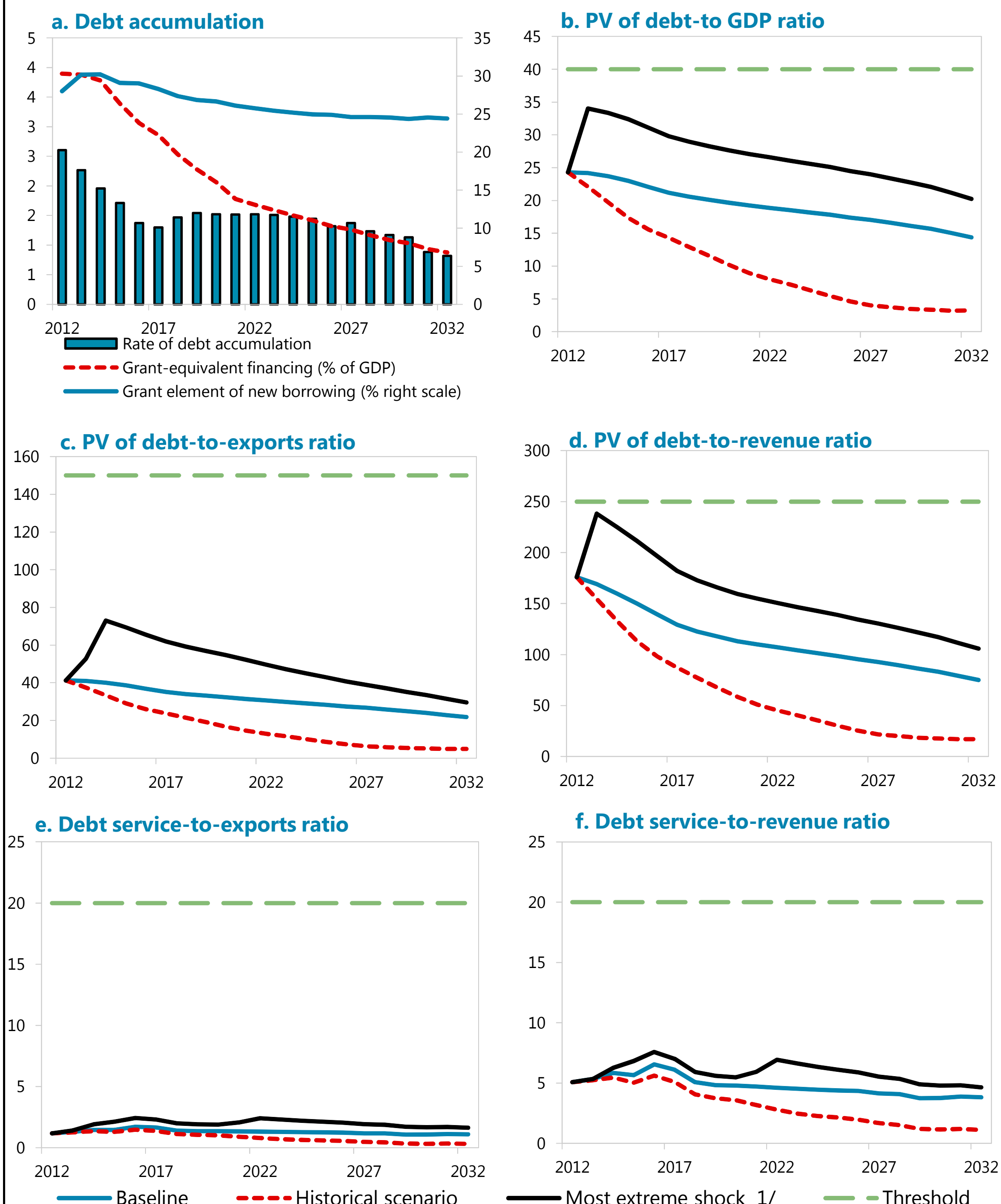
CONCLUSION

14. Cambodia remains at low risk of debt distress under the baseline scenario. The baseline projections and the standard stress tests show limited risk to external debt given that none of the indicators breach their thresholds.

15. However, the alternative scenario of limited reform progress shows that promoting structural reforms and mobilizing revenue are imperative to ensure long-term debt sustainability. This exercise also emphasizes the importance of maintaining macroeconomic stability, managing new debt accumulation effectively, and monitoring and managing any potential contingent liabilities arising from the power-generation projects and the financial sector.

16. Staffs welcome progress made in adopting the new debt management strategy and strengthening debt management capacity. The authorities should move forward to implement the comprehensive debt management strategy and to assess and monitor the risks and potential contingent liabilities. In this context, staffs recommend to continue improving information sharing with a view to setting up a central monitoring unit with “gateway powers” to evaluate and approve new PPP projects, enhancing fiscal transparency by adopting a ceiling on PPP guarantees, and listing all contingent liabilities and government guarantees in annual budget laws.

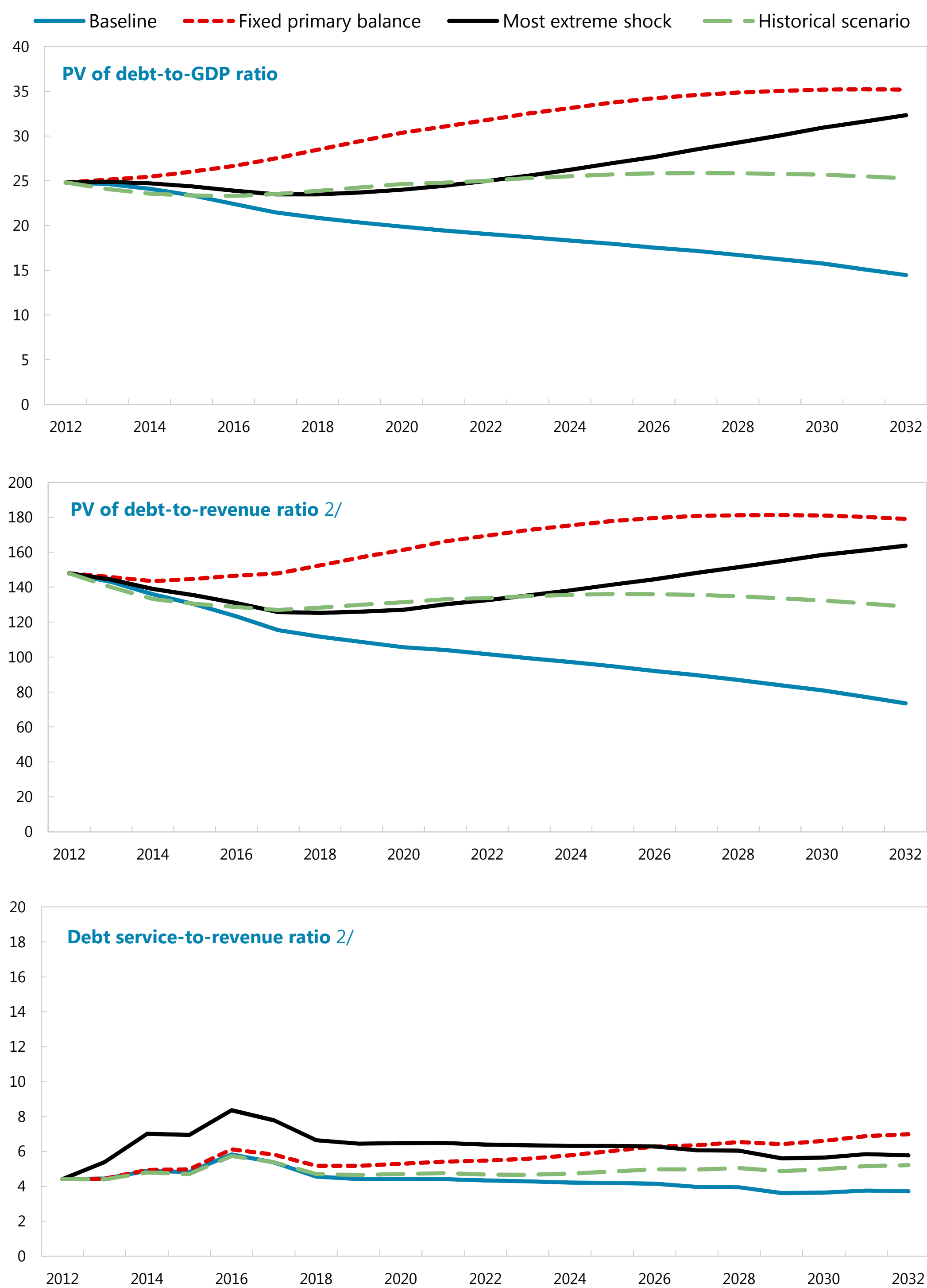
Figure 1. Cambodia: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2012–32 1/



Sources: Cambodian authorities; and IMF staff estimates and projections.

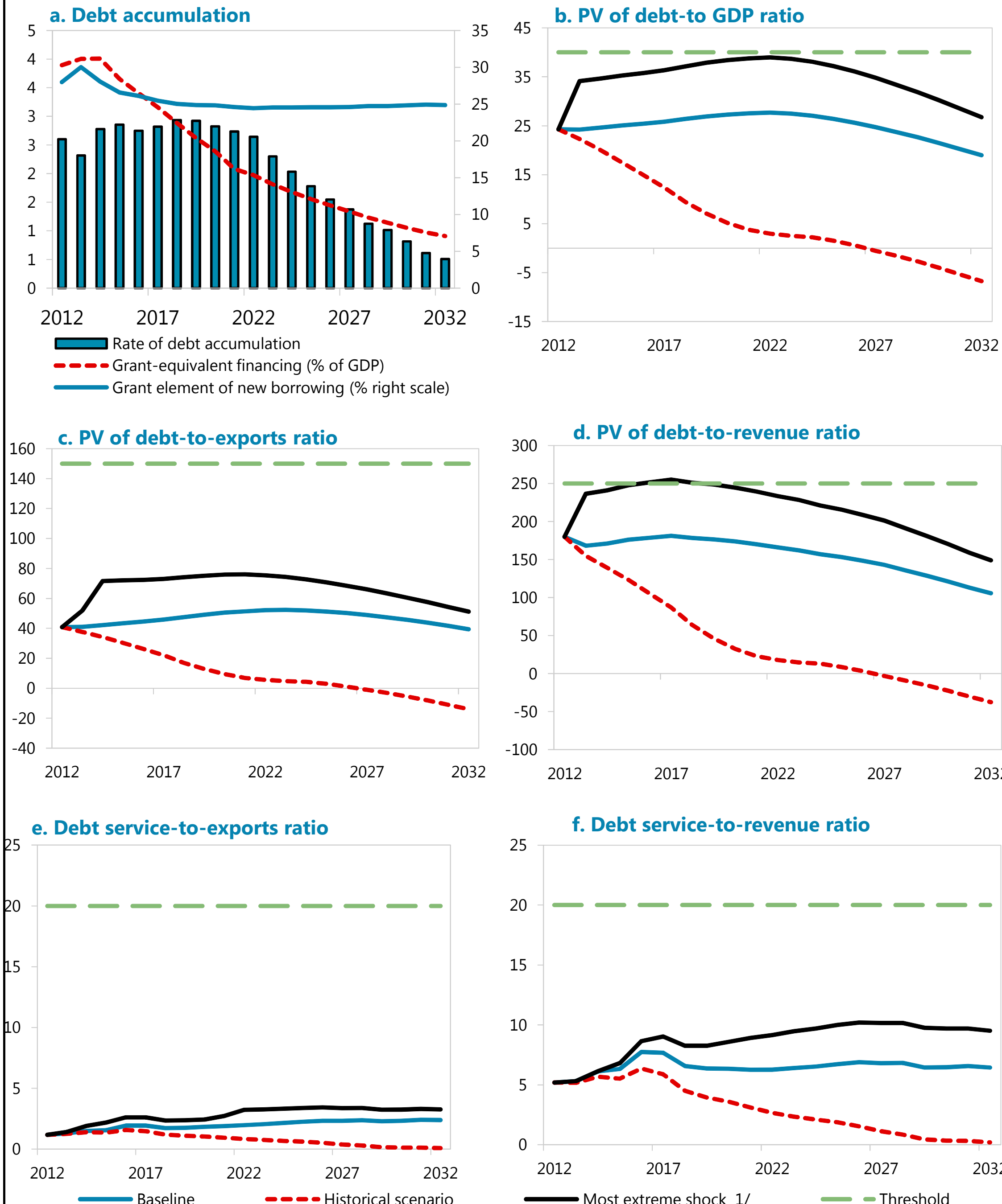
1/ The most extreme stress test is the test that yields the highest ratio in 2022. In figure b. it corresponds to a one-time depreciation shock; in c. to an exports shock; in d. to a one-time depreciation shock; in e. to an exports shock and in figure f. to an exports shock.

Figure 2. Cambodia: Indicators of Public Debt Under Alternative Scenarios, 2012–32 1/



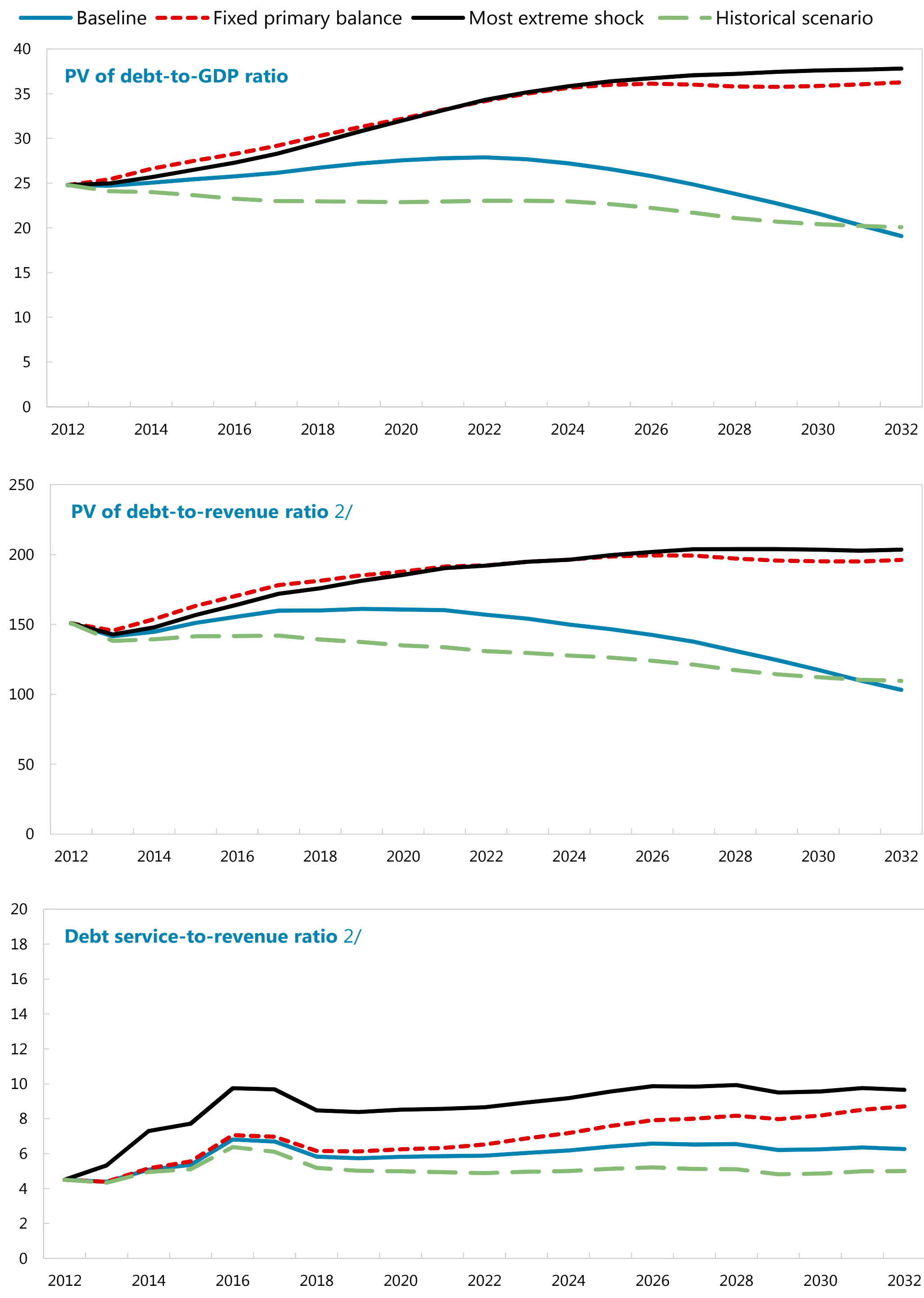
Sources: Cambodian authorities; and IMF staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio in all figures, this corresponds to a permanent growth shock in 2022.
2/ Revenues are defined inclusive of grants.

Figure 3. Cambodia: Indicators of External Debt, Alternative Scenario of Limited Reform Progress, 2012–32 1/



Sources: Cambodian authorities; and IMF staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio in 2022. In figure b. it corresponds to a one-time depreciation shock; in c. to an exports shock; in d. to a one-time depreciation shock; in e. to an exports shock and in figure f. to a terms-of-trade shock.

Figure 4. Cambodia: Indicators of Public Debt, Alternative Scenario of Limited Reform Progress, 2012–32 1/



Sources: Cambodian authorities; and IMF staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in all figures, this corresponds to a permanent growth shock in 2022.

2/ Revenues are defined inclusive of grants.

Table 1a. Cambodia: External Debt Sustainability Framework, Baseline Scenario, 2009–32 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 2/	Standard Deviation 2/	Projections									
	2009	2010	2011			2012	2013	2014	2015	2016	2017	2012–17 Average	2022	2032	2018–22 Average
External debt (nominal) 1/	**28.4**	**28.7**	**29.7**			**30.1**	**30.2**	**29.9**	**29.2**	**28.2**	**27.2**		**24.5**	**18.4**	
Of which: Public and publicly guaranteed (PPG)	28.4	28.7	29.7			30.1	30.2	29.9	29.2	28.2	27.2		24.5	18.4	
Change in external debt	1.4	0.3	1.0			0.3	0.1	-0.3	-0.7	-1.0	-1.0		-0.5	-0.8	
Identified net debt-creating flows	-0.6	-5.0	-7.1			-2.1	-2.1	-2.2	-2.2	-3.0	-3.5		-2.5	-3.4	
Noninterest current account deficit	**4.3**	**3.6**	**7.8**	**3.4**	**2.1**	**9.7**	**9.5**	**7.3**	**6.7**	**5.8**	**5.2**	**7.4**	**5.9**	**4.6**	5.6
Deficit in balance of goods and services	8.4	7.9	8.9			11.1	10.0	7.5	6.7	5.9	5.5		5.7	3.9	
Exports	43.4	49.3	57.7			58.9	58.9	59.1	59.6	60.0	60.2		61.7	65.9	
Imports	51.8	57.2	66.6			70.0	68.9	66.6	66.2	65.9	65.8		67.4	69.8	
Net current transfers (negative = inflow)	-8.5	-8.6	-6.3	-9.1	1.4	-5.6	-4.9	-4.5	-4.1	-3.8	-3.5	-4.4	-2.6	-2.2	-2.5
Of which: Official	-6.7	-6.8	-3.8			-3.3	-2.9	-2.5	-2.1	-1.8	-1.5		-0.6	-0.2	
Other current account flows (negative = net inflow)	4.3	4.4	5.1			4.2	4.4	4.3	4.2	3.8	3.2		2.7	3.0	
Net FDI (negative = inflow)	**-5.0**	**-6.8**	**-11.5**	**-6.1**	**3.2**	**-10.5**	**-10.2**	**-7.9**	**-7.3**	**-7.2**	**-7.2**	**-8.4**	**-7.0**	**-6.9**	-7.0
Endogenous debt dynamics 3/	**0.1**	**-1.8**	**-3.4**			**-1.4**	**-1.5**	**-1.6**	**-1.6**	**-1.6**	**-1.6**		**-1.4**	**-1.1**	
Contribution from nominal interest rate	0.3	0.3	0.3			0.3	0.4	0.4	0.4	0.4	0.3		0.3	0.2	
Contribution from real GDP growth	0.0	-1.6	-1.8			-1.7	-1.8	-2.0	-2.0	-2.0	-1.9		-1.7	-1.3	
Contribution from price and exchange rate changes	-0.1	-0.5	-1.9			...	...	...	...	...	...		...	...	
Residual (3-4) 4/	**2.1**	**5.3**	**8.1**			**2.5**	**2.3**	**1.8**	**1.5**	**2.0**	**2.5**		**2.1**	**2.6**	
Of which: Exceptional financing	-0.2	-0.2	-0.1			-0.1	-0.1	-0.1	-0.1	-0.1	-0.1		0.0	0.0	
PV of external debt 5/	...	...	24.2			24.3	24.2	23.7	23.0	22.1	21.2		18.9	14.4	
In percent of exports	...	...	42.0			41.2	41.0	40.1	38.6	36.8	35.1		30.6	21.8	
PV of PPG external debt	**...**	**...**	**24.2**			**24.3**	**24.2**	**23.7**	**23.0**	**22.1**	**21.2**		**18.9**	**14.4**	
In percent of exports	**...**	**...**	**42.0**			**41.2**	**41.0**	**40.1**	**38.6**	**36.8**	**35.1**		**30.6**	**21.8**	
In percent of government revenues	**...**	**...**	**185.0**			**176.0**	**169.2**	**159.9**	**150.2**	**139.6**	**129.3**		**107.0**	**75.2**	
Debt service-to-exports ratio (in percent)	**1.5**	**1.4**	**1.2**			**1.2**	**1.3**	**1.5**	**1.5**	**1.7**	**1.7**		**1.3**	**1.1**	
PPG debt service-to-exports ratio (in percent)	**1.5**	**1.4**	**1.2**			**1.2**	**1.3**	**1.5**	**1.5**	**1.7**	**1.7**		**1.3**	**1.1**	
PPG debt service-to-revenue ratio (in percent)	**5.3**	**5.2**	**5.2**			**5.1**	**5.3**	**5.8**	**5.7**	**6.5**	**6.1**		**4.6**	**3.8**	
Total gross financing need (billions of U.S. dollars)	0.0	-0.3	-0.4			0.0	0.0	0.1	0.1	-0.1	-0.2		-0.1	-1.6	
Noninterest current account deficit that stabilizes debt ratio	2.8	3.3	6.7			9.4	9.4	7.7	7.4	6.8	6.3		6.3	5.4	
Key macroeconomic assumptions															
Real GDP growth (in percent)	0.1	6.1	7.1	8.0	3.6	6.5	6.7	7.2	7.4	7.4	7.5	7.1	7.4	7.5	7.5
GDP deflator in U.S. dollar terms (change in percent)	0.5	1.9	7.0	4.3	3.8	3.8	3.2	2.9	2.8	2.8	2.8	3.0	2.4	2.5	2.4
Effective interest rate (percent) 6/	1.1	1.1	1.2	1.1	0.1	1.3	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.4	1.3
Growth of exports of G&S (U.S. dollar terms, in percent)	-10.0	22.8	33.8	14.3	14.3	12.9	10.1	10.7	11.2	11.2	10.9	11.2	10.8	10.9	10.8
Growth of imports of G&S (U.S. dollar terms, in percent)	-9.6	19.2	33.3	14.1	12.5	16.2	8.3	6.7	9.7	9.8	10.4	10.2	10.5	10.5	10.5
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	28.0	30.2	30.2	29.1	29.0	28.3	29.1	25.8	24.4	25.4
Government revenues (excluding grants, in percent of GDP)	12.0	13.1	13.1			13.8	14.3	14.8	15.3	15.8	16.4		17.6	19.1	18.1
Aid flows (in billions of U.S. dollars) 7/	0.6	0.8	0.7			0.7	0.8	0.8	0.8	0.8	0.9		0.9	1.2	
Of which: Grants	0.4	0.6	0.4			0.4	0.5	0.5	0.5	0.5	0.5		0.4	0.5	
Of which: Concessional loans	0.2	0.2	0.3			0.3	0.3	0.3	0.3	0.3	0.3		0.5	0.7	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			3.9	3.9	3.8	3.4	3.1	2.9		1.7	0.9	1.5
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			61.8	64.0	65.3	65.1	64.3	63.9		49.8	45.0	48.9
Memorandum items:															
Nominal GDP (billions of U.S. dollars)	10.4	11.3	12.9			14.2	15.7	17.3	19.1	21.1	23.3		37.5	98.4	
Nominal dollar GDP growth	0.6	8.1	14.5			10.5	10.0	10.3	10.4	10.4	10.5	10.4	10.0	10.2	10.1
PV of PPG external debt (in billions of U.S. dollars)			3.1			3.5	3.8	4.1	4.4	4.6	4.9		7.1	14.1	
(PVt-PVt-1)/GDPt-1 (in percent)						2.6	2.3	2.0	1.7	1.4	1.3	1.9	1.5	0.8	1.3
Gross workers' remittances (billions of U.S. dollars)	0.2	0.2	0.3			0.3	0.3	0.3	0.4	0.4	0.5		0.8	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	23.6			23.8	23.7	23.2	22.6	21.6	20.7		18.5	14.4	
PV of PPG external debt (in percent of exports + remittances)	...	...	40.3			39.7	39.7	38.7	37.4	35.6	34.0		29.6	21.8	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	1.1			1.1	1.3	1.4	1.4	1.7	1.6		1.3	1.1	

Sources: Cambodian authorities; and IMF staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

3/ Derived as $[r - g - \rho(1+g)]/(1+g+\rho+g\rho)$ times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and ρ = growth rate of GDP deflator in U.S. dollar terms.

4/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

5/ Assumes that PV of private sector debt is equivalent to its face value.

6/ Current-year interest payments divided by previous period debt stock.

7/ Defined as grants, concessional loans, and debt relief.

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

Table 1b. Cambodia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012–32
(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
PV of debt-to GDP ratio								
Baseline	24	24	24	23	22	21	**19**	14
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	24	22	20	17	16	14	**8**	3
A2. New public sector loans on less favorable terms in 2012–32 /2	24	25	26	25	25	25	**25**	22
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	24	25	25	24	23	22	**20**	15
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	24	28	35	34	32	31	**25**	16
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	24	25	25	24	23	22	**20**	15
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	24	27	28	27	26	25	**21**	15
B5. Combination of B1-B4 using one-half standard deviation shocks	24	27	30	28	27	26	**22**	15
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	24	34	33	32	31	30	**27**	20
PV of debt-to-exports ratio								
Baseline	41	41	40	39	37	35	**31**	22
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	41	37	33	29	26	24	**13**	5
A2. New public sector loans on less favorable terms in 2012–32 /2	41	43	43	43	42	41	**40**	33
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	41	41	40	39	37	35	**31**	22
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	41	53	73	69	66	62	**50**	30
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	41	41	40	39	37	35	**31**	22
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	41	47	47	45	43	41	**34**	23
B5. Combination of B1-B4 using one-half standard deviation shocks	41	47	52	49	47	44	**37**	24
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	41	41	40	39	37	35	**31**	22
PV of debt-to-revenue ratio								
Baseline	176	169	160	150	140	129	**107**	75
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	176	155	133	113	98	87	**45**	17
A2. New public sector loans on less favorable terms in 2012–32 /2	176	176	172	166	159	151	**139**	112
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	176	173	168	158	146	136	**112**	79
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	176	197	240	222	204	187	**142**	84
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	176	173	168	158	147	136	**112**	79
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	176	192	189	177	164	151	**120**	78
B5. Combination of B1-B4 using one-half standard deviation shocks	176	192	200	186	172	158	**125**	81
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	176	238	225	211	197	182	**151**	106

Table 1b. Cambodia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012–32 (concluded)

(In percent)

				Projections				
	2012	2013	2014	2015	2016	2017	**2022**	2032
Debt service-to-exports ratio								
Baseline	1	1	1	1	2	2	**1**	1
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	1	1	1	1	1	1	**1**	0
A2. New public sector loans on less favorable terms in 2012–32 /2	1	1	1	2	2	2	**2**	2
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	1	1	1	1	2	2	**1**	1
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	1	1	2	2	2	2	**2**	2
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	1	1	1	1	2	2	**1**	1
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	1	1	2	2	2	2	**2**	1
B5. Combination of B1-B4 using one-half standard deviation shocks	1	1	2	2	2	2	**2**	1
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	1	1	1	1	2	2	**1**	1
Debt service-to-revenue ratio								
Baseline	5	5	6	6	7	6	**5**	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	5	5	5	5	6	5	**3**	1
A2. New public sector loans on less favorable terms in 2012–32 /2	5	5	6	6	7	7	**6**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	5	5	6	6	7	6	**5**	4
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	5	5	6	7	8	7	**7**	5
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	5	5	6	6	7	6	**5**	4
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	5	5	6	6	7	6	**5**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	5	5	6	6	7	7	**6**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	5	8	8	8	9	9	**6**	5
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	24	24	24	24	24	24	**24**	24

Sources: Cambodian authorities; and IMF staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), noninterest current account in percent of GDP, and nondebt creating flows.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the baseline.
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).
4/ Includes official and private transfers and FDI.
5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 2a. Cambodia: Public Sector Debt Sustainability Framework, Baseline Scenario, 2009–32

(In percent of GDP, unless otherwise indicated)

	Actual					Estimate					Projections				
	2009	2010	2011	Average 1/	Standard Deviation 1/	2012	2013	2014	2015	2016	2017	2012–17 Average	2022	2032	2018–32 Average
Public sector debt 2/	29.1	29.3	30.3			30.6	30.7	30.3	29.6	28.5	27.5		24.6	18.4	
Of which: Foreign-currency denominated	28.4	28.7	29.7			30.1	30.2	29.9	29.2	28.2	27.2		24.5	18.4	
Change in public sector debt	1.4	0.2	1.0			0.3	0.1	-0.4	-0.7	-1.0	-1.1		-0.5	-0.8	
Identified debt-creating flows	4.0	-0.6	1.4			0.4	-0.1	-0.7	-1.4	-1.9	-2.2		-1.5	-1.4	
Primary deficit	3.9	2.3	4.0	1.9	1.9	2.9	2.3	1.8	1.1	0.5	0.1	1.5	0.4	0.2	0.3
Revenue and grants	16.3	18.0	16.3			16.8	17.2	17.7	18.0	18.2	18.6		18.7	19.7	
Of which: Grants	4.2	4.9	3.2			3.0	2.9	2.9	2.6	2.4	2.2		1.1	0.5	
Primary (noninterest) expenditure	20.1	20.3	20.3			19.7	19.5	19.5	19.0	18.7	18.7		19.2	19.8	
Automatic debt dynamics	0.1	-2.9	-2.6			-2.5	-2.4	-2.5	-2.5	-2.4	-2.4		-2.0	-1.5	
Contribution from interest rate/growth differential	0.3	-1.7	-2.0			-1.9	-2.0	-2.2	-2.2	-2.2	-2.2		-1.9	-1.4	
Of which: Contribution from average real interest rate	0.3	0.0	0.0			-0.1	-0.1	-0.1	-0.1	-0.2	-0.2		-0.2	-0.1	
Of which: Contribution from real GDP growth	0.0	-1.7	-1.9			-1.8	-1.9	-2.1	-2.1	-2.0	-2.0		-1.7	-1.3	
Contribution from real exchange rate depreciation	-0.2	-1.2	-0.7			-0.6	-0.4	-0.3	-0.3	-0.2	-0.2		...	...	
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	
Debt relief (HIPC and other)	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	-2.7	0.8	-0.4			-0.2	0.2	0.4	0.7	0.9	1.2		1.1	0.6	
Other Sustainability Indicators															
PV of public sector debt	...	...	24.8			24.8	24.6	24.1	23.4	22.4	21.5		19.1	14.5	
Of which: Foreign-currency denominated	...	...	24.2			24.3	24.2	23.7	23.0	22.1	21.2		18.9	14.4	
Of which: External	...	...	24.2			24.3	24.2	23.7	23.0	22.1	21.2		18.9	14.4	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 3/	5.1	3.5	5.2			4.1	3.5	3.0	2.3	1.9	1.4		1.4	0.9	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	152.0			147.9	143.0	136.0	130.2	123.3	115.5		101.7	73.5	
PV of public sector debt-to-revenue ratio (in percent)	...	...	189.3			179.7	172.4	162.7	152.7	141.8	131.2		108.1	75.5	
Of which: External 4/	...	...	185.0			176.0	169.2	159.9	150.2	139.6	129.3		107.0	75.2	
Debt service-to-revenue and grants ratio (in percent) 5/	3.9	3.8	4.2			4.4	4.4	4.9	4.8	5.8	5.4		4.3	3.7	
Debt service-to-revenue ratio (in percent) 5/	5.3	5.2	5.2			5.4	5.4	5.9	5.7	6.7	6.1		4.6	3.8	
Primary deficit that stabilizes the debt-to-GDP ratio	2.5	2.1	3.0			2.7	2.2	2.1	1.8	1.6	1.2		0.9	1.0	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	0.1	6.1	7.1	8.0	3.6	6.5	6.7	7.2	7.4	7.4	7.5	7.1	7.4	7.5	7.5
Average nominal interest rate on forex debt (in percent)	1.1	1.1	1.2	1.1	0.1	1.3	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.4	1.3
Average real interest rate on domestic debt (in percent)	-2.1	-2.4	-3.1	-4.8	2.7	-3.3	-3.0	-2.9	-2.8	-2.8	-2.794	-2.9	-2.404	-2.516	-2.4
Real exchange rate depreciation (in percent, + indicates depreciation)	-0.6	-4.5	-2.5	-2.6	2.8	-2.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	2.6	3.0	3.4	4.6	3.3	3.6	3.3	3.2	3.2	3.1	3.1136	3.2	2.7013	2.81919	2.7
Growth of real primary spending (deflated by GDP deflator, in percent)	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0757	0.1	0.0749	0.08218	0.1
Grant element of new external borrowing (in percent)	...	...	...	...	...	28.0	30.2	30.2	29.1	29.0	28.287	29.1	25.772	24.4042	...

Sources: Cambodian authorities; and IMF staff estimates and projections.

1/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.
2/ The public sector debt represents general government gross debt.
3/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
4/ Revenues excluding grants.
5/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.

Table 2b. Cambodia: Sensitivity Analysis for Key Indicators of Public Debt, 2012–32
(In percent)

		Projections						
	2012	2013	2014	2015	2016	2017	2022	2032
PV of debt-to-GDP ratio								
Baseline	25	25	24	23	22	21	19	14
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	25	24	24	23	23	24	25	25
A2. Primary balance is unchanged from 2012	25	25	25	26	27	27	32	35
A3. Permanently lower GDP growth 1/	25	25	25	24	24	23	25	32
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013–14	25	25	26	26	25	25	25	22
B2. Primary balance is at historical average minus one standard deviations in 2013–14	25	26	27	26	25	24	21	15
B3. Combination of B1-B2 using one half standard deviation shocks	25	25	26	25	24	23	21	17
B4. One-time 30 percent real depreciation in 2013	25	34	32	31	29	27	22	16
B5. 10 percent of GDP increase in other debt-creating flows in 2013	25	32	31	30	28	27	23	16
PV of debt-to-revenue ratio 2/								
Baseline	148	143	136	130	123	115	102	74
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	148	140	133	131	129	127	134	129
A2. Primary balance is unchanged from 2012	148	146	144	145	147	148	169	179
A3. Permanently lower GDP growth 1/	148	144	139	135	131	126	133	164
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013–14	148	147	146	143	139	133	130	114
B2. Primary balance is at historical average minus one standard deviations in 2013–14	148	150	150	143	135	127	109	77
B3. Combination of B1-B2 using one half standard deviation shocks	148	146	144	139	132	125	113	87
B4. One-time 30 percent real depreciation in 2013	148	198	183	171	159	146	119	79
B5. 10 percent of GDP increase in other debt-creating flows in 2013	148	187	175	166	156	146	123	82
Debt service-to-revenue ratio 2/								
Baseline	4	4	5	5	6	5	4	4
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	4	4	5	5	6	5	5	5
A2. Primary balance is unchanged from 2012	4	4	5	5	6	6	5	7
A3. Permanently lower GDP growth 1/	4	4	5	5	6	6	5	6
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013–14	4	5	5	5	6	6	5	5
B2. Primary balance is at historical average minus one standard deviations in 2013–14	4	4	5	5	6	6	5	4
B3. Combination of B1-B2 using one half standard deviation shocks	4	4	5	5	6	6	5	4
B4. One-time 30 percent real depreciation in 2013	4	5	7	7	8	8	6	6
B5. 10 percent of GDP increase in other debt-creating flows in 2013	4	4	6	6	6	6	6	4

Sources: Cambodian authorities; and IMF staff estimates and projections.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.
2/ Revenues are defined inclusive of grants.

Table 3a. Cambodia: External Debt Sustainability Framework, Alternative Scenario of Limited Reform Progress, 2009–32 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical 2/ Average	Standard 2/ Deviation	Projections									
	2009	2010	2011			2012	2013	2014	2015	2016	2017	2012–17 Average	2022	2032	2018–32 Average
External debt (nominal) 1/	**28.4**	**28.7**	**29.7**			**30.1**	**30.3**	**31.1**	**31.8**	**32.4**	**33.1**		**35.5**	**24.1**	
Of which: Public and publicly guaranteed (PPG)	28.4	28.7	29.7			30.1	30.3	31.1	31.8	32.4	33.1		35.5	24.1	
Change in external debt	1.4	0.3	1.0			0.3	0.2	0.8	0.7	0.6	0.7		0.1	-1.5	
Identified net debt-creating flows	-0.6	-5.0	-7.1			-4.1	-2.3	-1.1	-0.5	-0.2	0.2		-1.2	-0.8	
Noninterest current account deficit	**4.3**	**3.6**	**7.8**	**3.4**	**2.1**	**7.7**	**9.1**	**7.7**	**7.5**	**7.4**	**7.6**	**7.8**	**5.2**	**3.5**	4.8
Deficit in balance of goods and services	8.4	7.9	8.9			9.1	9.6	7.8	7.5	7.6	8.0		5.2	3.6	
Exports	43.4	49.3	57.7			59.5	59.2	58.5	57.7	57.0	56.3		53.1	48.2	
Imports	51.8	57.2	66.6			68.6	68.8	66.4	65.2	64.7	64.3		58.2	51.8	
Net current transfers (negative = inflow)	-8.5	-8.6	-6.3	-9.1	1.4	-5.6	-4.9	-4.5	-4.1	-3.8	-3.6	-4.4	-2.6	-2.3	-2.6
Of which: Official	-6.7	-6.8	-3.8			-3.3	-2.9	-2.5	-2.1	-1.8	-1.6		-0.6	-0.3	
Other current account flows (negative = net inflow)	4.3	4.4	5.1			4.2	4.4	4.3	4.1	3.6	3.1		2.6	2.2	
Net FDI (negative = inflow)	**-5.0**	**-6.8**	**-11.5**	**-6.1**	**3.2**	**-10.5**	**-10.0**	**-7.5**	**-6.6**	**-6.3**	**-6.0**	**-7.8**	**-4.9**	**-3.3**	-4.4
Endogenous debt dynamics 3/	**0.1**	**-1.8**	**-3.4**			**-1.4**	**-1.4**	**-1.4**	**-1.4**	**-1.3**	**-1.3**		**-1.5**	**-1.1**	
Contribution from nominal interest rate	0.3	0.3	0.3			0.3	0.4	0.4	0.4	0.4	0.4		0.4	0.3	
Contribution from real GDP growth	0.0	-1.6	-1.8			-1.7	-1.8	-1.8	-1.8	-1.7	-1.7		-1.9	-1.4	
Contribution from price and exchange rate changes	-0.1	-0.5	-1.9			...	...	...	...	...	...		...	...	
Residual (3-4) 4/	**2.1**	**5.3**	**8.1**			**4.4**	**2.6**	**1.9**	**1.2**	**0.8**	**0.4**		**1.3**	**-0.7**	
Of which: Exceptional financing	-0.2	-0.2	-0.1			-0.1	-0.1	-0.1	-0.1	-0.1	-0.1		0.0	0.0	
PV of external debt 5/	...	...	24.2			24.3	24.2	24.6	25.1	25.4	25.8		27.7	19.0	
In percent of exports	...	...	42.0			40.8	40.9	42.1	43.4	44.6	45.9		52.2	39.4	
PV of PPG external debt	**...**	**...**	**24.2**			**24.3**	**24.2**	**24.6**	**25.1**	**25.4**	**25.8**		**27.7**	**19.0**	
In percent of exports	**...**	**...**	**42.0**			**40.8**	**40.9**	**42.1**	**43.4**	**44.6**	**45.9**		**52.2**	**39.4**	
In percent of government revenues	**...**	**...**	**185.0**			**180.2**	**168.1**	**171.3**	**176.2**	**178.9**	**181.4**		**166.0**	**106.0**	
Debt service-to-exports ratio (in percent)	**1.5**	**1.4**	**1.2**			**1.2**	**1.3**	**1.5**	**1.6**	**1.9**	**1.9**		**2.0**	**2.4**	
PPG debt service-to-exports ratio (in percent)	**1.5**	**1.4**	**1.2**			**1.2**	**1.3**	**1.5**	**1.6**	**1.9**	**1.9**		**2.0**	**2.4**	
PPG debt service-to-revenue ratio (in percent)	**5.3**	**5.2**	**5.2**			**5.2**	**5.3**	**6.1**	**6.3**	**7.7**	**7.7**		**6.3**	**6.4**	
Total gross financing need (billions of U.S. dollars)	0.0	-0.3	-0.4			-0.3	0.0	0.2	0.3	0.5	0.6		0.5	1.2	
Noninterest current account deficit that stabilizes debt ratio	2.8	3.3	6.7			7.4	8.8	6.9	6.7	6.8	6.9		5.0	5.1	
Key macroeconomic assumptions															
Real GDP growth (in percent)	0.1	6.1	7.1	8.0	3.6	6.5	6.5	6.4	6.2	6.0	5.8	6.2	6.0	6.0	6.0
GDP deflator in U.S. dollar terms (change in percent)	0.5	1.9	7.0	4.3	3.8	3.8	3.2	3.1	3.2	3.2	3.3	3.3	2.9	3.0	3.0
Effective interest rate (percent) 6/	1.1	1.1	1.2	1.1	0.1	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3
Growth of exports of G&S (U.S. dollar terms, in percent)	-10.0	22.8	33.8	14.3	14.3	14.0	9.5	8.5	8.2	8.1	7.9	9.4	8.0	8.1	8.0
Growth of imports of G&S (U.S. dollar terms, in percent)	-9.6	19.2	33.3	14.1	12.5	13.8	10.3	5.9	7.8	8.5	8.7	9.2	6.6	8.1	7.5
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	28.0	30.0	28.1	26.6	26.1	25.4	27.4	24.4	24.9	24.7
Government revenues (excluding grants, in percent of GDP)	12.0	13.1	13.1			13.5	14.4	14.4	14.2	14.2	14.2		16.7	17.9	16.9
Aid flows (in billions of U.S. dollars) 7/	0.6	0.8	0.7			0.7	0.8	0.9	0.9	1.0	1.0		1.0	1.1	
Of which: Grants	0.4	0.6	0.4			0.4	0.5	0.5	0.5	0.5	0.5		0.4	0.5	
Of which: Concessional loans	0.2	0.2	0.3			0.3	0.3	0.4	0.4	0.5	0.5		0.6	0.6	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			3.9	4.0	4.0	3.7	3.4	3.2		2.0	0.9	1.7
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			61.8	64.2	59.1	55.9	53.4	51.1		41.9	45.8	44.4
Memorandum items:															
Nominal GDP (billions of U.S. dollars)	10.4	11.3	12.9			14.2	15.7	17.2	18.9	20.6	22.6		34.7	83.3	
Nominal dollar GDP growth	0.6	8.1	14.5			10.5	9.9	9.8	9.7	9.4	9.3	9.8	9.1	9.2	9.1
PV of PPG external debt (in billions of U.S. dollars)			3.1			3.5	3.8	4.2	4.7	5.2	5.8		9.6	15.8	
(PVt-PVt-1)/GDPt-1 (in percent)						2.6	2.3	2.8	2.9	2.7	2.8	2.7	2.6	0.5	1.8
Gross workers' remittances (billions of U.S. dollars)	0.2	0.2	0.3			0.3	0.3	0.3	0.4	0.4	0.5		0.7	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	23.6			23.8	23.8	24.1	24.6	24.9	25.3		27.1	19.0	
PV of PPG external debt (in percent of exports + remittances)	...	...	40.3			39.4	39.6	40.7	42.0	43.0	44.3		50.3	39.4	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	1.1			1.1	1.2	1.5	1.5	1.9	1.9		1.9	2.4	

Sources: Cambodian authorities; and IMF staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

3/ Derived as [r - g - ρ(1+g)]/(1+g+ρ+gρ) times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and ρ = growth rate of GDP deflator in U.S. dollar terms.

4/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

5/ Assumes that PV of private sector debt is equivalent to its face value.

6/ Current-year interest payments divided by previous period debt stock.

7/ Defined as grants, concessional loans, and debt relief.

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

Table 3b. Cambodia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, Alternative Scenario of Limited Reform Progress, 2012–32

(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
PV of debt-to GDP ratio								
Baseline	24	24	25	25	25	26	**28**	19
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	24	22	20	18	15	12	**3**	-7
A2. New public sector loans on less favorable terms in 2012–32 2/	24	25	27	28	30	31	**37**	29
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	24	25	26	26	26	27	**29**	20
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	24	28	35	35	35	35	**34**	21
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	24	25	26	26	27	27	**29**	20
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	24	27	29	29	29	29	**30**	20
B5. Combination of B1-B4 using one-half standard deviation shocks	24	27	28	29	29	29	**30**	20
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	24	34	35	35	36	36	**39**	27
PV of debt-to-exports ratio								
Baseline	41	41	42	43	45	46	**52**	39
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	41	38	34	30	26	22	**6**	-14
A2. New public sector loans on less favorable terms in 2012–32 2/	41	43	46	49	52	55	**69**	61
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	41	41	42	43	44	46	**52**	39
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	41	52	72	72	72	73	**76**	51
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	41	41	42	43	44	46	**52**	39
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	41	46	49	50	51	52	**56**	41
B5. Combination of B1-B4 using one-half standard deviation shocks	41	46	49	50	51	52	**57**	42
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	41	41	42	43	44	46	**52**	39
PV of debt-to-revenue ratio								
Baseline	180	168	171	176	179	181	**166**	106
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	180	155	139	123	105	87	**18**	-37
A2. New public sector loans on less favorable terms in 2012–32 2/	180	175	186	198	208	217	**220**	163
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	180	171	178	183	186	189	**172**	110
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	180	195	246	246	245	243	**202**	116
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	180	173	180	186	188	191	**175**	112
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	180	190	199	202	203	204	**179**	109
B5. Combination of B1-B4 using one-half standard deviation shocks	180	188	198	202	203	205	**181**	111
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	180	237	241	248	252	255	**234**	149

Table 3b. Cambodia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, Alternative Scenario of Limited Reform Progress, 2012-32 (concluded)

(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
Debt service-to-exports ratio								
Baseline	1	1	2	2	2	2	**2**	2
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	1	1	1	1	2	1	**1**	0
A2. New public sector loans on less favorable terms in 2012–32 2/	1	1	2	2	2	2	**3**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	1	1	2	2	2	2	**2**	2
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	1	1	2	2	3	3	**3**	3
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	1	1	2	2	2	2	**2**	2
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	1	1	2	2	2	2	**2**	3
B5. Combination of B1-B4 using one-half standard deviation shocks	1	1	2	2	2	2	**2**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	1	1	2	2	2	2	**2**	2
Debt service-to-revenue ratio								
Baseline	5	5	6	6	8	8	**6**	6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012–32 1/	5	5	6	6	6	6	**3**	0
A2. New public sector loans on less favorable terms in 2012–32 2/	5	5	6	7	9	9	**9**	10
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013–14	5	5	6	7	8	8	**7**	7
B2. Export value growth at historical average minus one standard deviation in 2013–14 3/	5	5	7	8	9	9	**9**	7
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2013–14	5	5	6	7	8	8	**7**	7
B4. Net nondebt creating flows at historical average minus one standard deviation in 2013–14 4/	5	5	6	7	8	8	**7**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	5	5	7	7	8	8	**7**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	5	7	9	9	11	11	**9**	9
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	23	23	23	23	23	23	**23**	23

Sources: Cambodian authorities; and IMF staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), noninterest current account in percent of GDP, and nondebt creating flows.
2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).
4/ Includes official and private transfers and FDI.
5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.