



# LAO PEOPLE'S DEMOCRATIC REPUBLIC

## STAFF REPORT FOR THE 2013 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS<sup>1</sup>

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*Lao P.D.R.'s risk of debt distress remains moderate.<sup>2</sup> Although all external debt distress indicators remain below the policy-dependent indicative thresholds during the projection period under the baseline scenario, the thresholds are breached in the presence of certain shocks. Compared to last year's DSA, the PV of external debt to GDP ratio is closer to the threshold, leaving few buffers in case of any adverse shock. Also, while debt service ratios remain within the policy-dependent indicative thresholds, primarily because of the high level of concessionality of official borrowing, composition of concessional funds is expected to shift away from grants and towards loans at lower levels of concessionality. Since the country might rely more on loans with commercial terms as it graduates from the low-income status, it will be necessary for the authorities to strengthen fiscal management, upgrade debt and cash management capacity, and scale upwards the country's public investment management capacity.*

<sup>1</sup> This DSA has been prepared by IMF and World Bank staffs, in consultation with the Lao P.D.R. authorities.

<sup>2</sup> The low-income country debt sustainability framework (LIC DSF) recognizes that better policies and institutions allow countries to manage higher levels of debt, and thus the threshold levels for debt indicators are policy-dependent. In the LIC-DSF, the quality of a country's policies and institutions is measured by the World Bank's Country Policy and Institutional Assessment (CPIA) index and classified into three categories: strong, medium, and weak. Lao P.D.R.'s policies and institutions, as measured by the CPIA, averaged 3.34 over the past 3 years. Since its average CPIA index has been above 3.25 for two years in a row, Lao P.D.R.'s policy performance remains classified as medium according to the "Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-income Countries" ([www.imf.org/external/np/pp/eng/2010/012210.pdf](http://www.imf.org/external/np/pp/eng/2010/012210.pdf)). Therefore, the relevant indicative thresholds for this category are: 40 percent for the PV of debt-to-GDP ratio, 150 percent for the PV of debt-to-exports ratio, 250 percent for the PV of debt-to-revenue ratio, 20 percent for the debt service-to-exports ratio, and 20 percent for the debt service-to-revenue ratio. These thresholds are applicable to public and publicly guaranteed external debt.

## BACKGROUND

**1. The 2012 Debt Sustainability Analysis (DSA) reclassified Lao P.D.R.'s risk of debt distress from high to moderate.**<sup>3</sup> This change was mainly driven by the enhancement in Lao P.D.R.'s Country Policy and Institutional Assessment (CPIA) index, which raised the indicative debt distress thresholds significantly while the debt dynamics remained largely unchanged from the 2011 DSA.

**2. This LIC DSA for Lao P.D.R. continues to classify the risk of debt distress as moderate.** Lao P.D.R.'s CPIA index continued to improve slightly in 2012, thus the classification of its policy performance stays moderate and the indicative debt distress thresholds remain the same as in the 2012 DSA. All external debt distress indicators stay below policy-dependent indicative thresholds during the projection period under baseline assumptions.

Lao P.D.R.: External Public Debt Indicators and End-2012		
	Indicative thresholds	End-2012
Present value of debt, as a percent of		
GDP	40	32.5
Exports	150	73.8
Revenue	250	184.9
Debt service, as a percent of:		
Exports	20	4.1
Revenue	20	10.1
Sources: Lao P.D.R. authorities; and IMF and World Bank staff estimates		

**3. Lao P.D.R.'s external public and publically-guaranteed (PPG) debt remains elevated compared to other LICs in Asia, and the debt level has been rising since 2012.** The nominal stock of external PPG debt increased from US\$3.7 billion in 2011 to US\$4.2 billion in 2012, mainly due to rapid increase in borrowing from China and Thailand. As a result, even with high real GDP growth and the kip's appreciation vis-à-vis the U.S. dollar, the PPG external debt-to-GDP ratio climbed from 44.8 percent of GDP to 46.1 percent of GDP in 2012. The corresponding net present value (PV) of debt at end-2012 was 32.5 percent of GDP, up from 29.8 percent of GDP in 2011.

**4. The high level of concessionality of official borrowing helps keep the external debt service ratios at manageable levels,** with public and publicly-guaranteed (PPG) external debt stock indicators expected to remain below the policy-dependent indicative thresholds throughout the entire projection period under the baseline scenario. However, the PV of debt to GDP ratio is very close to its safety threshold in the near term. Shocks to the domestic and external environment or excessively loose macroeconomic policies could easily push the stock of external public debt beyond sustainable levels, with some debt distress indicators breaching their respective thresholds under certain stress tests.<sup>4</sup> In this regard, debt dynamics are most sensitive to large depreciation of the kip relatively to baseline in 2014, as external debt is predominantly denominated in foreign currency.

<sup>3</sup> See the joint IMF-WB DSA for 2012: IMF Country Report No.12/286.

<sup>4</sup> Stress tests include sharp exchange rate depreciation, more adverse terms of additional foreign financing, and reductions in GDP growth among others shocks.

**5. External PPG debt is split almost evenly between multilateral and bilateral creditors in 2012.**

The multilateral creditors consist mainly of the Asian Development Bank (AsDB—26 percent of total external debt) and the International Development Association (IDA—14.8 percent of total external debt).

Bilateral creditors, mainly China, India, Japan, Korea, Malaysia, Russia, and Thailand account for 47 percent of total external debt. The importance of bilateral creditors has increased

significantly vis-à-vis multilateral creditors. Although small, the share of nonconcessional external PPG debt has increased steadily in the last several years, standing at 6.7 percent in 2012. This increase resulted from heavy investments in hydropower and electricity generation projects, including the need by the public sector to finance its equity stakes in these investment projects.

<b>Lao P.D.R.: Stock of Public and Publicly Gauranteed External Debt at End-2012</b>			
	In Bllions of U.S. Dollar	As a Share of Total External Debt	In Percent of GDP
Total	4.2	100	46.0
Multilateral	1.9	45.9	21.1
Bilateral	2.0	47.3	21.8
Commercial 1/	0.3	6.7	3.1
Sources: Lao P.D.R. authorities; and IMF and World Bank staff estimates			
1/ Includes direct borrowing by state-owned enterprises on nonconcessional terms			

**6. The rising external debt to GDP ratio underscores the need to strengthen debt management capacity.**

It is particularly important to ensure that debt sustainability considerations are taken into account when new debt is contracted, especially given that the country will rely more on external loans with market terms as it is graduating from low income status. Additional external borrowing to finance infrastructure mega-projects, for example, could easily push the debt-to-GDP ratio over the indicative debt stress threshold, potentially jeopardizing debt sustainability. A mitigating factor for Lao P.D.R.'s external debt burden lies in the prospective returns on the hydropower and mining projects that have been financed in part by external PPG debt. The long-term power purchase agreements that are signed for these projects and the resulting government revenues in the form of royalties, dividends, and profit tax payments arguably reduce the risk of debt distress in the long run. However, many of these projects face construction and implementation challenges, and will not generate significant return in the near term.

**7. Recorded domestic public debt rose to 15.8 percent of GDP in 2012, up from 8.9 percent of GDP in 2011.**

The Bank of the Lao P.D.R. (BoL) continued to disburse loans to finance local government's off-budget infrastructure projects. Lending from the BOL to local governments represents about half of the recorded total domestic debt, with the remainder including government bonds related to the recapitalization of state-owned commercial banks (SOCBs). Total domestic and external PPG debt stood at 61.8 percent of GDP in 2012, up from 56.2 percent the year before. This increase is related to a more expansionary fiscal policy in 2012 including central government financing of large public investment projects. The stock of BOL loans to local governments is projected to peak in the near future as these quasi-fiscal operations are phased out.

## ASSUMPTIONS UNDERLYING THE DEBT SUSTAINABILITY ANALYSIS

### 8. The medium-term macroeconomic framework underlying the DSA is summarized in Box 1.

The baseline scenario—which is based on current policies—projects annual average real growth of 6.9 percent between 2013 and 2033. Real GDP growth is projected to rise to 8.2 percent in 2013 before reverting toward

potential of about 7½ percent in the medium term. With economic activity expanding beyond potential and a further increase in public employee payrolls in 2013–15, price pressures are expected to increase. Consumer price inflation is projected to be around 7 percent on average in the medium term.

Lao P.D.R.: Macroeconomic Assumption: Comparison with 2012 (Average over the 20 years projection horizon)		
	2012 DSA	2013 DSA
GDP growth	6.8	6.9
GDP deflator in U.S. dollar terms (in percent)	2.1	2.2
Non interest current account deficit	12.2	12.3
Primary deficit	0.7	1.6
Sources: Lao P.D.R. authorities; and IMF and World Bank staff estimates		

**9. However, the baseline projects significant deterioration in medium-term external and fiscal position compared to the 2012 DSA.** Due to the surge of imports and weaker export growth momentum in 2012, the current account deficit widened significantly to 28.4 percent of GDP from 15.5 percent of GDP in 2011, and is expected to further deteriorate to 29.5 percent of GDP in 2013. The fiscal position in FY2012/13 also deteriorated significantly due to high financing of off-budget public investment projects and public sector compensation increase. Over the long run, the baseline path of the fiscal positions has worsened compared to the 2012 DSA due to continued expansionary fiscal policy.

**10. As a result, a higher level of external financing is assumed.** To meet the country's financing needs, higher level of new borrowing is projected. This is consistent with the authorities' disbursement projection over 2013-2018. The external financing is assumed to remain largely on concessional terms over the medium term. In the long run, as Lao P.D.R. graduates from low-income country status, grant financing is expected to decline relative to loans from bilateral creditors as well as from commercial sources, and thus the share of commercial external PPG debt is projected to rise over the long term. It is worth noting that as the domestic financial market deepens, the private sector will be able to rely more on domestic financing, lowering the needs for foreign borrowing. This would bring down the share of external private debt in total external debt, which, along with declining overall external debt stock in percent of GDP, would reduce the contribution from nominal interest rate in the longer run.

## DEBT SUSTAINABILITY

### A. External Debt Sustainability Analysis

**11. The PV of the external debt-to-GDP ratio remains below the policy-dependent indicative thresholds during the projection period under baseline conditions (Figure 1 and Table 1), but is much**

**higher than in previous DSA and is very close to the thresholds in the near term.** This change is driven by the higher debt stock at end-2012, as well as projected higher new borrowing because Lao P.D.R.'s current account deficit is expected to narrow only gradually over the projection period. Similar to last year's DSA, all three external debt stock indicators are projected to remain more or less flat until about 2018, as large projected disbursements are expected to be counteracted by a combination of debt repayment and high GDP growth during the next several years. In line with the previous DSA, debt service ratios under the baseline scenario are projected to fall below policy-dependent thresholds during the projection period.

**12. Exchange rate movements and shocks to the cost of new loans present the most important risks to external debt sustainability.** Table 3 and Figure 1 illustrate how a one-off 30 percent depreciation of the kip vis-à-vis the U.S. dollar would lead to a sharp rise in the PV of debt-to-GDP and the PV of debt-to-revenues. In both cases the policy-dependent thresholds are breached. A rise in the cost of additional financing (by 200 basis points relative to the baseline) would increase the PV of debt-to-exports ratio by around 29 percentage points in the long run relative to the baseline. However, even under this extreme scenario, there would be no breaches of the corresponding threshold.

**13. Debt dynamics continue to be markedly worse under an alternative scenario in which key variables are either set at their historical averages or subject to shocks, such as one-time exchange rate depreciation and a temporary decline in FDI inflows.** Through 2016, debt dynamics are more favorable under this historical scenario—which takes into account the appreciation of the kip relative to the U.S. dollar experienced during 2003–2012.<sup>5</sup> In later years, however, this effect is outweighed by the higher historical average of the current account deficit (16 percent of GDP compared to 9.4 percent of GDP in the baseline), and the lower historical average for FDI (5.1 percent of GDP compared to 9.3 percent of GDP in the baseline). The historical scenario thus assumes around 9 percentage points of GDP more in debt accumulation than the baseline, putting Lao P.D.R. on an unsustainable path in the long run. Therefore, a negative shock to FDI in Lao P.D.R. would force it to reduce substantially its current account deficit in order to avoid external debt distress.

**14. An illustrative scenario involving a high-speed railway megaproject linking Lao P.D.R. and China shows that the country's debt sustainability indicators would breach their indicative policy-dependent thresholds.** Under this scenario: (1) the additional external borrowing amounts to US\$ 6.7 billion over 5 years (adding to US\$ 1.34 billion per annum), starting in 2014; (2) the financing terms are: 2 percent fixed rate debt, with 20-year maturity, 10-year grace period, and loan denominated in USD; and (3) a fiscal multiplier of 0.5 during the construction period.<sup>6</sup> As a result, the overall external PPG debt would peak at around 80 percent of GDP in 2022, and exceed 60 percent of GDP for the next decade, while the total external debt would surpass 125 percent of GDP in 2014, and remain above the 100 percent mark for the next decade. Also, the ratio of debt service to revenue exceeds the 20 percent threshold in 2021 and remains elevated for the entire projection period.

<sup>5</sup> The kip appreciated 2.4 percent per year on average during this period.

<sup>6</sup> This value is an upper bound given a heavy reliance on imported inputs.

### Box 1. Baseline Scenario—Underlying Assumptions (2012–32)

*The baseline macroeconomic framework assumes that the economy is overheating due to expansionary fiscal and monetary policies. Although long-term growth is still anchored by the vigorous energy production sector, vulnerabilities have heightened.*

**Real GDP growth** is projected to average 7.8 percent during 2013–18. The near-term outlook is spurred by the fiscal expansion, real GDP growth is projected to rise to 8.2 percent in 2013 before reverting toward potential of about 7½ percent in the medium term. This outlook depends on continued accommodative monetary policy, rising public sector employee compensation, vigorous resource-related FDI inflows, rising electricity demand from neighboring countries, and a gradual pickup of investment inflows into nonresource sectors following Lao P.D.R.'s recent WTO accession. Over the longer term, assumed structural reforms would create a better environment for private investment, broadening the sources of growth. Real GDP is expected to moderate to 6.7 percent on average during 2019–33, as production in the resource sector reaches maturity. Over time, the share of agriculture in GDP is expected to decline, as the transition to a market based economy is accompanied by the rising importance of the industry and services sectors. Graduation from low-income status could be achieved in the second half of the projection period.

**Inflation** is projected to average about 6.5 percent in 2013, and reaches 7.5 percent in 2014. With economic activity expanding beyond potential and a further increase in public employee payrolls in 2013–15, price pressures are expected to increase. Over the medium term, inflation is expected to decline further, but it is projected to remain above 5 percent until 2018.

**The balance of payments** continues to be driven by developments in the resource sector, which has an important bearing both in the current account and the capital and financial account. The current account deficit is expected to widen to about 29.5 percent of GDP in 2013–14, as the nonresource deficit remains elevated and the resource deficit temporarily increases before large-scale power projects come on stream in 2015–2016. FDI inflows are assumed to be vigorous over the next two years, driven by growing investment inflows into both resource and nonresource sectors following Lao P.D.R.'s recent WTO accession. However, reserve levels would be inadequate by low-income country (LIC) metrics at less than 1½ months of imports. The current account is projected to improve over medium and long term, assuming that nonresource exports and services will gradually pick up driven by solid recovery in advanced economies, strengthened regional integration, supported by improvements in the investment climate, streamlining of business regulations, and the prevalence of trade commitments.

**External financing** is assumed to remain on largely concessional terms over the medium term. In the long-run, however, grant financing decreases with economic development.

- **Multilateral creditors:** Projected loan disbursements in the medium term are relatively low, since IDA and AsDB have a pipeline of operations financed on grant terms. Over the longer term, project loans are assumed to increase moderately.
- **Bilateral creditors:** For 2013–18, project loan disbursements also increase, as donors provide support to the government's development agenda. Over the medium and longer term, greater participation by new emerging market creditors results in an increased role for bilateral finance, including for lending to state-owned enterprises.
- **Commercial creditors:** Over the medium term, commercial disbursements are relatively small, principally used to finance a portion of the government's equity stake participation in the new hydropower projects. In addition, the initiative of bond issuance in Thailand market is incorporated in the DSA assumptions. A 50-million USD bond was issued in 2013, and two 100-million USD bond issuances are being planned for 2014 and 2015. The share of commercial loans in total PPG external debt has risen in 2012, and is expected to continue rising over the long term as the country becomes more market-based.

**Fiscal policy** is projected to be expansionary in the near term, and then shift back to the consolidation path. The primary deficit is projected to peak at 4.3 percent of GDP in 2013, up from 1.7 percent of GDP in 2012, then decline gradually to around 1.3 percent of GDP in 2018. Over the long-term the primary deficit is expected to stabilize at around 2 percent as improvements in nonmining revenue collection are counteracted by declines in mining and resource related revenue, while expenditure remains constant as a percent of GDP.

**Domestic debt** decreases over the medium term driven by repayments of the lending to local governments from the BOL. In the long term, net external finance declines relative to GDP, and a larger share of budget deficits is financed domestically, pushing domestic debt to higher but sustainable levels.

## B. Public Sector Debt Sustainability

**15. In line with the previous DSA's projections, the PV of total PPG debt in percent of GDP and in percent of revenue are both projected to decline markedly over the long run under baseline assumptions** (Figure 2 and Table 2). Domestic debt is expected to peak at 17.3 percent of GDP in 2016, rising from 15.8 percent of GDP in 2012. This is driven by the worsening fiscal position related to large increases in public employee remuneration. Domestic debt is projected to decline starting in 2017. Accordingly, the PV of debt-to-revenue ratio is also projected to decline starting in 2017, as revenue administration reforms take hold and expenditure control is maintained after the large increases in public employee remuneration.

**16. Public debt ratios are particularly sensitive to a depreciation of the kip over the medium term** (Figure 2 and Table 4). Similar to the results in last year's DSA, a 30 percent depreciation of the kip against the US dollar in 2014 would immediately raise the PV of public debt-to-GDP and the PV of public debt-to-revenue. While the debt service-to-revenue ratio is relatively stable under the baseline scenario, it would increase permanently by a substantial margin if the kip were to depreciate sharply. It should be noted that this scenario is likely to overstate risks given that a significant share of GDP, including most of the natural resource GDP, is earned in foreign currency.

**17. The debt ratios are also sensitive to the realization of contingent liabilities.** Public investment projects at the local government level could become liabilities of the central government if projects do not perform as expected. While the baseline scenario assumes that the BOL will phase out its quasi-fiscal lending completely by 2014, there is a risk that these operations could continue.

**18. Alternative scenarios show less positive debt dynamics over the longer term, which highlights the importance of fiscal consolidation over time.** In the historical scenario, where real GDP growth and the primary balance are at their historical average, the PV of public debt-to-GDP ratio rises above 39 percent by 2033, while under the baseline, the ratio of the PV of public debt to GDP remains at around 30 percent in 2033. This is because the projected primary deficit in the baseline is lower (1.9 percent of GDP in baseline compared to 2.9 percent of GDP in the historical scenario). If the primary balance is fixed at the level projected for 2013, the PV of debt-to-GDP would be much higher than the baseline in the long term (55.6 at 2033).

## THE AUTHORITIES' VIEWS

**19. The authorities broadly agreed with the overall assessment but emphasized that the debt service ability should be more important in measuring debt sustainability.** They expect better access to official financial resources which will improve their ability to finance capital needs. On the basis of information provided by local contracting parties, the authorities anticipated an increase in disbursements of new funds from some bilateral donors between 2013 and 2018 which has been incorporated into this

DSA.<sup>7</sup> Since Lao P.D.R. is expected to rely more on commercial funds as it graduates from its low-income country status, the authorities expect better access to nonconcessional loans in the future, and attach great importance to fiscal consolidation.

**20. The authorities highlighted that an important part of the external debt is related to viable large projects in the resource sectors.** They believe that resource-related projects will generate high and stable economic returns upon completion. In addition, the relatively long maturity profile of the loans would help mitigate the risks of debt distress. Finally, new borrowing to implement large-scale infrastructure projects is expected to be made without unduly raising debt sustainability concerns.

## CONCLUSION

**21. Although the Lao P.D.R.'s risk of debt distress remains moderate, the PV of external PPG debt to GDP ratio comes very close to the policy-dependent indicative thresholds in the near term.** While the thresholds are not breached by any of the debt distress indicators under baseline scenario, the PV of debt to GDP ratio approaches the threshold in the near term, driven by the rising debt stock at end-2012 as well as higher projected new borrowing in the future due to the expansionary fiscal path, leading to higher domestic and external financing needs. The buffers in case of any adverse shock are very limited.

**22. Moreover, these results are still sensitive to assumptions regarding investment and performance of the resource sector, as well as large swings in the exchange rate.** The debt dynamics reflect current and planned large-scale investments in hydropower and mining projects that will only deliver returns over the medium term. Despite long-term contracts with fixed prices for energy exports to neighboring countries, Lao P.D.R.'s economy remains exposed in the medium term to fluctuations in copper and gold prices, as well as to economic developments in its main trading partners (China, Thailand and Vietnam).<sup>8</sup> Lower growth in Lao P.D.R. a weaker balance of payments, and sharp depreciation of the kip would worsen debt dynamics significantly. Thus, there is a need to tighten macroeconomic-fiscal policies to support external debt sustainability. Fiscal policy needs to be put back on a consolidation path during the next few years. Cautious assessment and monitoring of large-scale projects and private external debt will be required to mitigate the risks posed to external and public debt sustainability, especially if some of these projects are financed from commercial sources, such as bonds backed by future revenues.

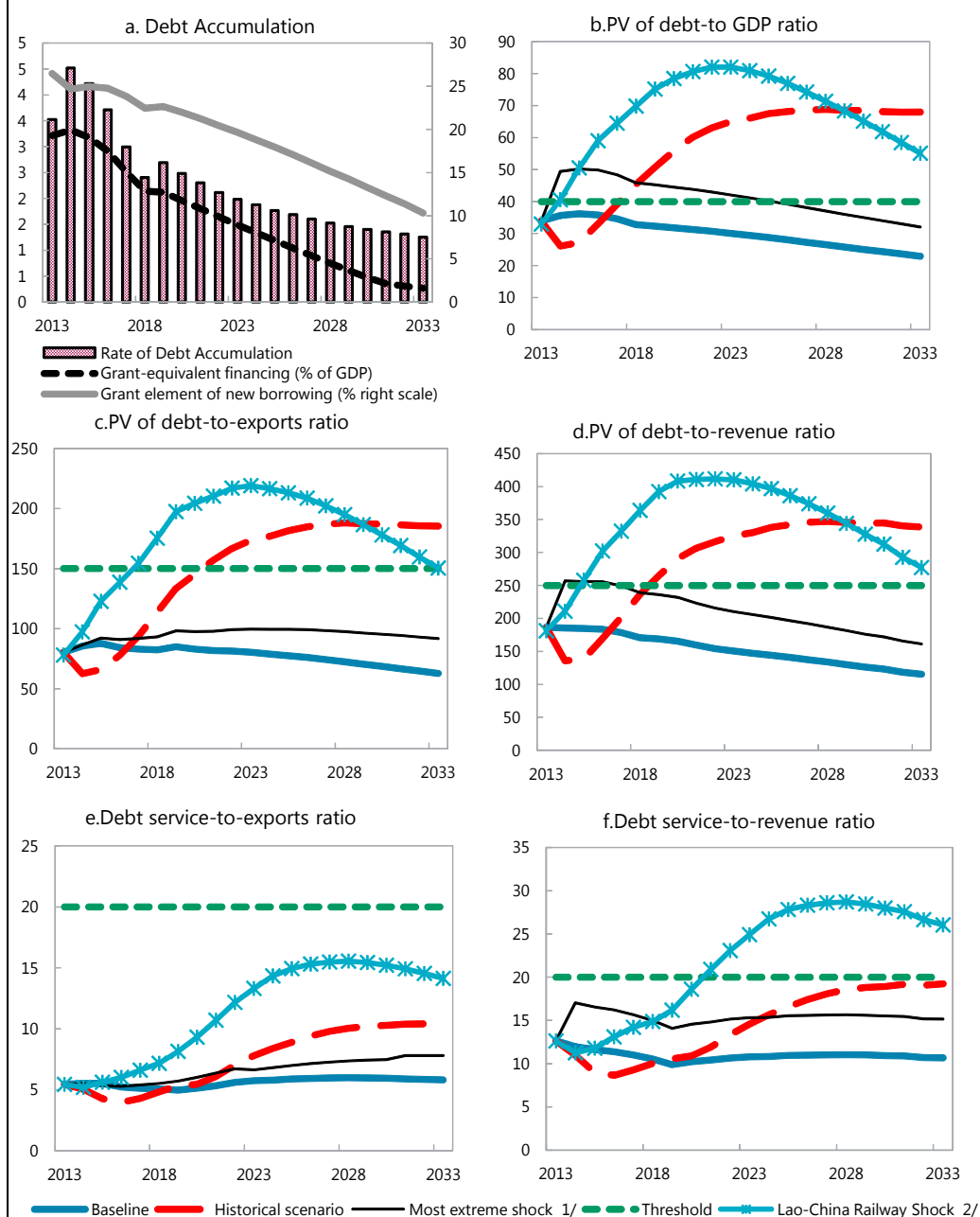
<sup>7</sup> The staff assumes the US\$961 million of projected disbursements from China between 2013–2018, which is based on information provided by the authorities. These disbursements are much larger than the 2012 DSA assumptions (\$600 million). Coupled with higher borrowing projection from Thailand, it results in a higher PV of debt to GDP ratio. However, the debt distress indicators under baseline remain below their policy-dependent thresholds, and thus there is no material change in the overall assessment of debt distress.

<sup>8</sup> In a customized scenario where commodity prices decline by 10 percent in 2013 and 2014, debt stock indicators breach their policy-dependent thresholds, illustrating the vulnerability of Lao P.D.R. to commodity price shocks. However, this customized scenario poses less of a threat to debt dynamics than the historical scenario.



**23. To remain sustainable, external borrowing should mostly be obtained on concessional terms and fiscal and quasi-fiscal liabilities should be carefully managed with a view to establishing buffers against vulnerabilities.** Prudent debt management, cash management, as well as cautious assessment and monitoring of large-scale projects, will be required to mitigate the potential risks of adverse debt dynamics under stress scenarios. Fiscal risk could arise if these projects fail to generate the expected returns, including to the government's own equity stakes. In this light, enhancing the government's public investment management capacity will go a long way toward increasing the benefits derived from debt-financed public investments.

**Figure 1. Lao P.D.R.: Indicators of Public and Publicity Guaranteed External Debt Under Alternatives Scenarios, 2013–2033**

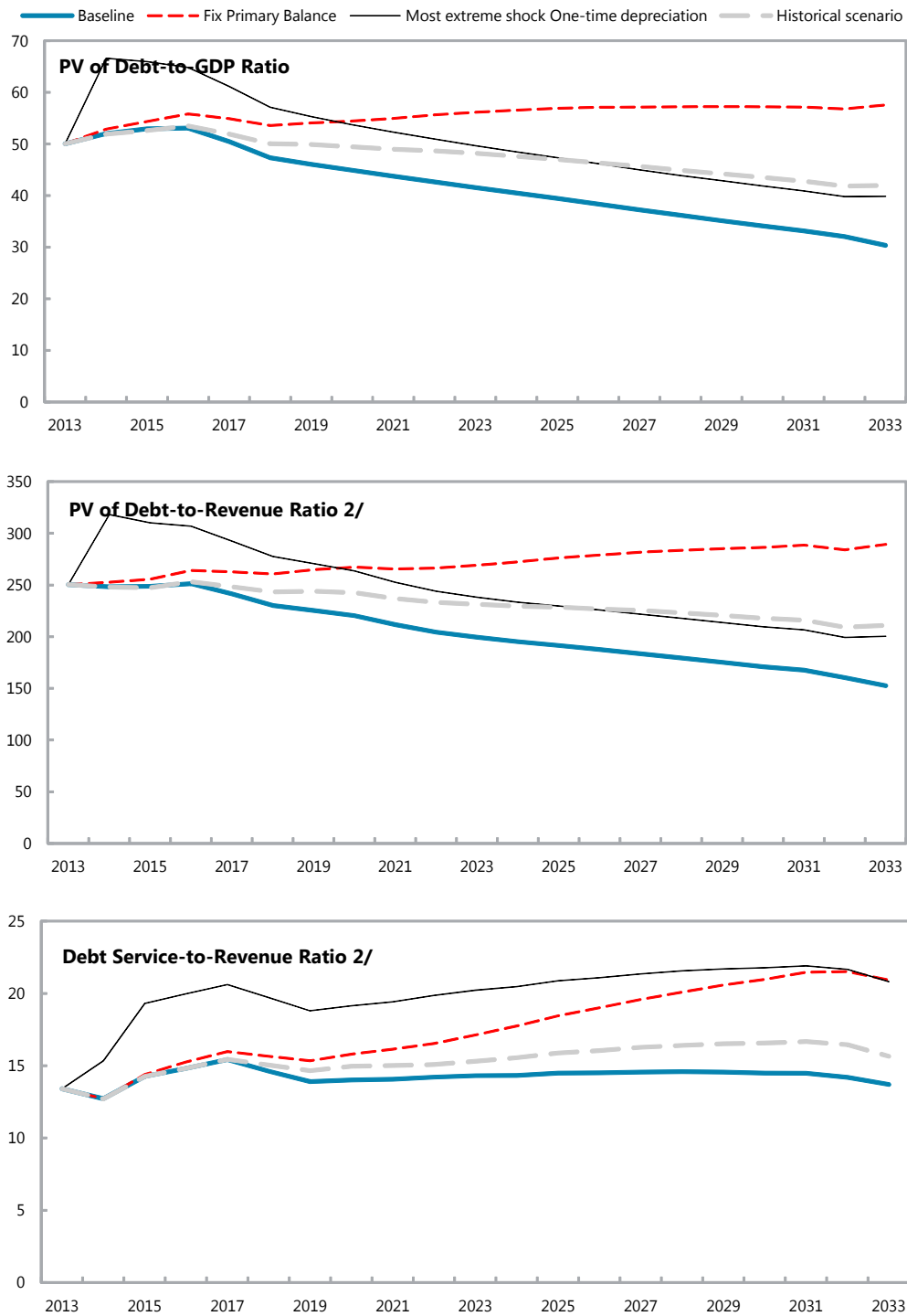


Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2033. In figure b, it corresponds to a one-time nominal depreciation shock; in c, to a terms shock; in d, to a one-time nominal depreciation shock; in e, to a terms shock and in figure f, to a one-time nominal depreciation shock

2/ The Lao-China railway scenario assumes (1) the additional external borrowing amounts to US\$ 6.7 billion over 5 years (adding to US\$ 1.34 billion per annum), starting in 2014; (2) the financing terms are as follows: 2 percent fixed rate debt, with 20-year maturity, 10-year grace period, and loan denominated in USD; and (3) a fiscal multiplier of 0.5

**Figure 2. Lao P.D.R.: Indicators of Public Debt Under Alternative Scenarios, 2013–2033 1/**



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2023.

2/ Revenues are defined inclusive of grants.



**Table 2. Lao P.D.R.: Public Sector Debt Sustainability Framework, Baseline Scenario, 2010–2033**

(In percent of GDP, unless otherwise indicated)

	Actual			1/ Average	1/ Standard Deviation	Estimate						Projections			
	2010	2011	2012			2013	2014	2015	2016	2017	2018	2013–18 Average		2023	2033
<b>Public sector debt 2/</b>	59.1	56.2	61.8			63.5	65.4	66.0	65.5	62.0	57.8		49.6	35.0	
<i>of which: foreign-currency denominated</i>	50.3	44.8	46.1			47.4	49.1	49.2	48.3	46.1	43.2		38.1	27.6	
Change in public sector debt	-4.9	-3.0	5.7			1.7	1.9	0.5	-0.4	-3.5	-4.2		-1.5	-2.0	
Identified debt-creating flows	-8.2	-5.6	-3.5			1.1	-1.3	-1.9	-3.3	-4.2	-4.5		-1.5	-0.4	
Primary deficit	3.7	2.2	1.7	2.9	1.1	4.3	3.0	3.4	2.3	1.5	1.1	2.6	1.1	1.3	1.2
Revenue and grants	18.1	18.6	19.6			20.0	20.9	21.3	21.1	20.9	20.6		20.9	19.9	
<i>of which: grants</i>	2.3	2.2	2.1			1.8	1.7	1.7	1.6	1.5	1.4		0.9	0.0	
Primary (noninterest) expenditure	21.8	20.8	21.3			24.3	23.9	24.7	23.4	22.4	21.7		21.9	21.2	
Automatic debt dynamics	-11.8	-7.8	-5.2			-3.2	-4.3	-5.3	-5.6	-5.6	-5.6		-2.6	-1.7	
Contribution from interest rate/growth differential	-5.2	-5.2	-4.1			-4.6	-4.7	-4.8	-4.8	-4.5	-4.3		-2.5	-1.6	
<i>of which: contribution from average real interest rate</i>	-0.3	-0.8	0.0			0.1	-0.3	-0.1	0.0	0.2	0.2		0.7	0.6	
<i>of which: contribution from real GDP growth</i>	-4.8	-4.4	-4.1			-4.7	-4.4	-4.7	-4.9	-4.7	-4.5		-3.2	-2.2	
Contribution from real exchange rate depreciation	-6.7	-2.6	-1.1			1.4	0.3	-0.5	-0.7	-1.2	-1.3		...	...	
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	3.3	2.6	9.2			0.6	3.3	2.4	2.9	0.6	0.3		0.0	-1.6	
<b>Other Sustainability Indicators</b>															
<b>PV of public sector debt</b>	...	...	48.3			50.0	52.0	52.9	53.1	50.5	47.3		41.6	30.4	
<i>of which: foreign-currency denominated</i>	...	...	32.5			33.9	35.7	36.2	35.8	34.6	32.8		30.1	23.0	
<i>of which: external</i>	...	...	32.5			33.9	35.7	36.2	35.8	34.6	32.8		30.1	23.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 3/	6.8	4.7	6.7			14.2	11.6	11.1	11.0	9.5	9.1		7.4	6.3	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	245.8			250.3	248.4	248.9	251.4	241.6	230.1		199.4	152.6	
PV of public sector debt-to-revenue ratio (in percent)	...	...	274.6			274.8	270.4	270.1	272.0	260.2	246.6		208.0	152.7	
<i>of which: external 4/</i>	...	...	184.9			186.4	185.4	184.6	183.6	178.4	170.8		150.5	115.5	
Debt service-to-revenue and grants ratio (in percent) 5/	10.3	7.2	10.3			13.4	12.7	14.3	14.8	15.4	14.6		14.3	13.2	
Debt service-to-revenue ratio (in percent) 5/	11.8	8.2	11.5			14.7	13.8	15.5	16.0	16.6	15.7		14.9	13.2	
Primary deficit that stabilizes the debt-to-GDP ratio	8.6	5.2	-4.0			2.6	1.1	2.9	2.7	5.0	5.3		2.6	3.3	
<b>Key macroeconomic and fiscal assumptions</b>															
Real GDP growth (in percent)	8.1	8.0	7.9	7.6	0.7	8.2	7.5	7.8	8.0	7.7	7.9	7.8	6.6	6.5	6.7
Average nominal interest rate on forex debt (in percent)	1.4	0.7	1.6	1.0	0.3	1.9	2.0	2.2	2.3	2.4	2.5	2.2	2.8	3.6	3.1
Average real interest rate on domestic debt (in percent)	-7.3	-5.3	-1.4	-0.5	5.8	-1.0	-3.6	-2.5	-1.6	-0.7	-0.8	-1.7	2.5	1.5	2.7
Real exchange rate depreciation (in percent, + indicates depreciation)	-12.9	-5.7	-2.6	-7.1	7.2	3.2	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	9.9	7.1	3.8	7.3	5.4	3.8	6.4	8.1	8.1	8.1	8.1	7.1	5.1	5.1	5.1
Growth of real primary spending (deflated by GDP deflator, in percent)	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Grant element of new external borrowing (in percent)	...	...	...	...	...	26.5	24.7	25.0	24.8	23.8	22.5	24.5	19.6	10.3	...

Sources: Country authorities; and staff estimates and projections.

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

2/ Public sector debt covers 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 3. Lao P.D.R.: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2013–2033

	(In percent)							
	Projections							
	2013	2014	2015	2016	2017	2018	2023	2033
<b>PV of debt-to-GDP ratio</b>								
<b>Baseline</b>	34	36	36	36	35	33	<b>30</b>	23
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2013–2033 1/	34	26	27	33	39	45	<b>65</b>	68
A2. New public sector loans on less favorable terms in 2013–2033 2/ China Railway Loan	34	36	38	39	38	37	<b>37</b>	34
	33	41	51	59	64	70	<b>82</b>	55
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	34	35	36	36	34	33	<b>30</b>	23
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	34	35	38	37	36	34	<b>31</b>	23
B3. US dollar GDP deflator at historical average minus one standard deviation in 2014–2015	34	34	34	34	33	31	<b>28</b>	22
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	34	38	47	46	44	42	<b>36</b>	25
B5. Combination of B1–B4 using one-half standard deviation shocks	34	32	34	34	33	31	<b>28</b>	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	34	49	50	50	48	46	<b>42</b>	32
<b>PV of debt-to-exports ratio</b>								
<b>Baseline</b>	80	86	88	84	83	82	<b>80</b>	63
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2013–2033 1/	80	63	66	78	94	114	<b>174</b>	185
A2. New public sector loans on less favorable terms in 2013–2033 2/ China Railway Loan	80	86	92	91	92	93	<b>100</b>	92
	78	97	123	139	154	175	<b>219</b>	150
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	80	83	86	82	81	81	<b>79</b>	61
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	80	86	98	93	92	92	<b>88</b>	67
B3. US dollar GDP deflator at historical average minus one standard deviation in 2014–2015	80	83	86	82	81	81	<b>79</b>	61
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	80	92	114	108	106	105	<b>96</b>	67
B5. Combination of B1–B4 using one-half standard deviation shocks	80	77	82	78	77	77	<b>74</b>	56
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	80	83	86	82	81	81	<b>79</b>	61
<b>PV of debt-to-revenue ratio</b>								
<b>Baseline</b>	186	185	185	184	178	171	<b>151</b>	116
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2013–2033 1/	186	136	139	170	202	236	<b>325</b>	339
A2. New public sector loans on less favorable terms in 2013–2033 2/ China Railway Loan	186	187	193	198	198	193	<b>187</b>	169
	181	211	258	302	332	364	<b>410</b>	277
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	186	181	182	182	178	170	<b>150</b>	115
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	186	184	193	192	187	179	<b>155</b>	116
B3. US dollar GDP deflator at historical average minus one standard deviation in 2014–2015	186	175	172	172	168	161	<b>142</b>	108
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	186	200	239	235	227	217	<b>179</b>	124
B5. Combination of B1–B4 using one-half standard deviation shocks	186	169	173	172	168	161	<b>140</b>	105
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	186	257	256	255	249	239	<b>210</b>	161

Table 3. Lao P.D.R.: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2013–2033 (concluded)

(In percent)

Debt service-to-exports ratio								
<b>Baseline</b>	5	6	6	5	5	5	<b>6</b>	6
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2013–2033 1/	5	5	4	4	4	5	<b>8</b>	10
A2. New public sector loans on less favorable terms in 2013–2033 2/ China Railway Loan	5	6	5	5	5	6	<b>7</b>	8
	5	5	6	6	7	7	<b>13</b>	14
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	5	6	6	5	5	5	<b>6</b>	6
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	5	6	6	6	6	6	<b>6</b>	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2014–2015	5	6	6	5	5	5	<b>6</b>	6
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	5	6	6	6	6	6	<b>7</b>	7
B5. Combination of B1–B4 using one-half standard deviation shocks	5	5	5	5	5	5	<b>5</b>	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	5	6	6	5	5	5	<b>6</b>	6
Debt service-to-revenue ratio								
<b>Baseline</b>	13	12	12	11	11	11	<b>11</b>	11
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2013–2033 1/	13	11	9	9	9	10	<b>15</b>	19
A2. New public sector loans on less favorable terms in 2013–2033 2/ China Railway Loan	13	12	11	12	12	11	<b>12</b>	14
	13	11	12	13	14	15	<b>25</b>	26
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	13	12	12	12	11	11	<b>11</b>	11
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	13	12	12	12	11	11	<b>11</b>	11
B3. US dollar GDP deflator at historical average minus one standard deviation in 2014–2015	13	12	11	11	11	10	<b>10</b>	10
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	13	12	12	14	13	12	<b>14</b>	12
B5. Combination of B1–B4 using one-half standard deviation shocks	13	11	11	11	10	10	<b>10</b>	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	13	17	17	16	16	15	<b>15</b>	15
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	17	17	17	17	17	17	<b>17</b>	17
Sources: Country authorities; and staff estimates and projections.								
1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt 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 4. Lao P.D.R.: Sensitivity Analysis for Key Indicators of Public Debt 2013–2033

	Projections							
	2013	2014	2015	2016	2017	2018	2023	2033
<b>PV of Debt-to-GDP Ratio</b>								
<b>Baseline</b>	50	52	53	53	50	47	42	30
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	50	52	53	54	52	50	48	42
A2. Primary balance is unchanged from 2013	50	53	54	56	55	54	56	58
A3. Permanently lower GDP growth 1/	50	52	53	53	51	48	43	36
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2014–2015	50	52	54	54	52	49	44	35
B2. Primary balance is at historical average minus one standard deviations in 2014–2015	50	53	54	54	51	48	42	32
B3. Combination of B1-B2 using one half standard deviation shocks	50	52	54	54	51	48	43	34
B4. One-time 30 percent real depreciation in 2014	50	67	66	65	61	57	50	40
B5. 10 percent of GDP increase in other debt-creating flows in 2014	50	59	59	59	56	52	45	34
<b>PV of Debt-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	250	248	249	251	242	230	199	153
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	250	248	247	253	248	243	231	211
A2. Primary balance is unchanged from 2013	250	253	256	264	263	261	269	289
A3. Permanently lower GDP growth 1/	250	249	250	253	244	233	207	182
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2014–2015	250	250	254	257	248	237	209	176
B2. Primary balance is at historical average minus one standard deviations in 2014–2015	250	252	254	256	246	234	203	163
B3. Combination of B1-B2 using one half standard deviation shocks	250	251	252	255	246	235	205	170
B4. One-time 30 percent real depreciation in 2014	250	318	310	307	293	278	238	200
B5. 10 percent of GDP increase in other debt-creating flows in 2014	250	281	279	280	268	255	218	172
<b>Debt Service-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	13	13	14	15	15	15	14	13
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	13	13	14	15	15	15	15	16
A2. Primary balance is unchanged from 2013	13	13	14	15	16	16	17	21
A3. Permanently lower GDP growth 1/	13	13	14	15	16	15	15	14
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2014–2015	13	13	14	15	16	15	15	14
B2. Primary balance is at historical average minus one standard deviations in 2014–2015	13	13	14	15	16	15	15	13
B3. Combination of B1-B2 using one half standard deviation shocks	13	13	14	15	16	15	15	14
B4. One-time 30 percent real depreciation in 2014	13	15	19	20	21	20	20	21
B5. 10 percent of GDP increase in other debt-creating flows in 2014	13	13	15	18	16	15	16	14
Sources: Country authorities; and 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.								