INTERNATIONAL MONETARY FUND

MONGOLIA

Debt Sustainability Analysis under the Debt Sustainability Framework for Low-Income Countries[1]

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December 7, 2009

Based on the external Debt Sustainability Analysis (DSA) Mongolia's risk of debt distress remains low.[2] Although the debt ratios will rise significantly over the next two years with the government receiving front-loaded foreign financing, the debt outlook is expected to recover and improve over the medium term. The public DSA suggests that in light of the signing of the Oyu Tolgoi mining agreement, domestic debt is expected to rise significantly in the medium term. However, risks are mitigated by the future associated mineral revenues starting in 2013 and do not lead to a different sustainability assessment than under the external DSA.

A. Background

1. **This update reflects new information regarding the recently signed Oyu Tolgoi mining agreement and its impact on the short-, medium-, and long-term outlook.** This update assumes that maintaining prudent macroeconomic and structural policies, including establishing a fiscal framework to avoid pro-cyclical policies, will be key for Mongolia to resume sustainable growth. Specifically, in light of tight financing conditions in the coming years, there is little choice but to continue fiscal adjustment until revenues from the Oyu Tolgoi mine, net of amortization, start to hit the budget (around 2016). Good macroeconomic policies will also help avoiding the "resource curse" which will represent a major challenge.

2. **The nonconcessional debt limit under the program is linked with the debt sustainability analysis.** The program includes a 35 percent minimum concessionality requirement but with added flexibility on nonconcessional external debt.[3] Under this ceiling

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[1] This is a Fund staff update to the joint World Bank/IMF DSA presented in the report for the request for SBA (Country Report No. 09/130). The fiscal year for Mongolia is January-December.

[2] Mongolia is rated as a medium performer based on the 2008 World Bank's Country Performance and Institutional Assessment Index and the debt sustainability uses the indicative threshold indicators for countries in this category.

[3] Due mainly to the nonconcessional nature of the SBA, the average grant element of total new borrowing falls to 24–27 percent in 2009–10.

US$100 million have been used, of which $75 million have been disbursed for gold operation financing and which are expected to be fully repaid in 2010.

B. Developments in 2009

3. **This year was marked by the signing of the Oyu Tolgoi investment agreement.** Economic activity has slowed more than expected in 2009, but a sharp rebound is projected, driven largely by capital expenditures related to the Oyu Tolgoi mine. In addition, copper prices are rebounding, mainly driven by renewed Chinese demand, and are projected to be 20 percent higher on average over the medium term and 4 percent in the long-term than projected in the SBA request.

4. **Several other major mining projects are being explored which could further improve the outlook.** The Tavan Tolgoi deposit, close to the border with China, could transform Mongolia into a major world coal producer. Other investment projects are being considered to tap into Mongolia's vast mineral resources.

5. **Domestic debt will increase due to borrowing agreements signed with the mining conglomerate.** The government will borrow US$250 million for budget financing and around $540 million to finance its 34 percent equity share in the project. As both loans will be contracted from a resident company, their impact is reflected in the public DSA. The advance payments for the Oyu Tolgoi project will be saved in 2010 in order to meet the 2011 financing needs and beyond.[4]

6. **The banking system's financial position has been deteriorating.** Costs associated with the restructuring will be fiscalized through the issuance of government bonds in 2009–10 at an estimated 8 percent of GDP. The injection of public funds will be tied to governance and structural reforms.

C. Medium-Term Macro and DSA Assumptions

7. **Compared to the previous DSA, the macroeconomic outlook has improved, supported by Mongolia's strong policy implementation under the SBA-supported program.** Market conditions have improved and monetary policy has brought down inflation and rebuilt international reserves with comfortable margins compared to program objectives. In addition, copper prices have been buoyed by restocking in China. Short-term prospects depend on the speed of economic recovery in China, the main recipient of Mongolian exports, and in the rest of the world.

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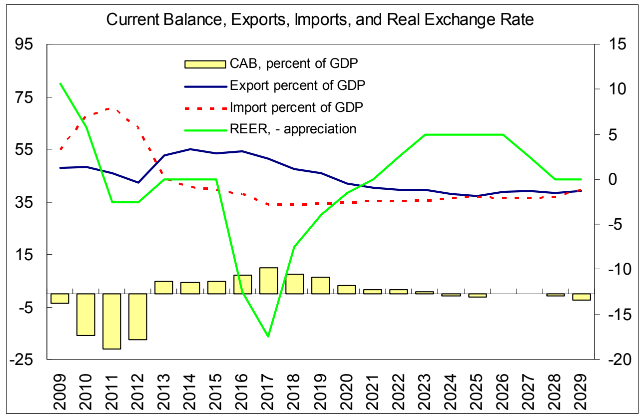
[4] These loans are expected to be repaid in 2014–17. The advance payment loans will be repaid from the general budget while government's equity share borrowing will be repaid from accrued dividends (the government will not be liable for the loan in the unlikely event that dividends are insufficient).

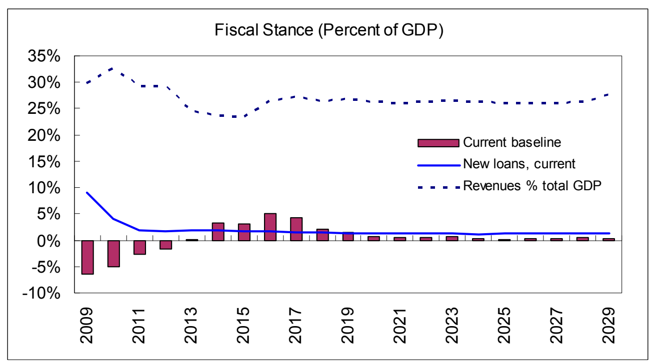
Mongolia—Macroeconomic Assumptions

The baseline macroeconomic framework includes the 2009-10 fiscal consolidation and assumes that the economy will be underpinned by the Oyu Tolgoi project.



- **The real GDP growth** outlook is dominated by the Oyu Tolgoi mine. Real growth is expected to bottom-out in 2009 at -1 percent and to rebound to over 8 percent in 2010, boosted by Oyu Tolgoi-related capital expenditures. Once production from the Oyu Tolgoi mine starts in 2013, it will boost growth up to 25 percent. Real GDP growth is expected to average 11 percent over the medium term, taking into account the impact on the nonmineral economy.

- **The balance of payments** will go through large swings. The current account will remain in deficit until 2012 due to large imports of mining-related investment goods. As the project comes on stream, it will jump into a surplus in 2013 and, as the project tapers off, converge to a surplus of 1 percent of GDP by 2029.

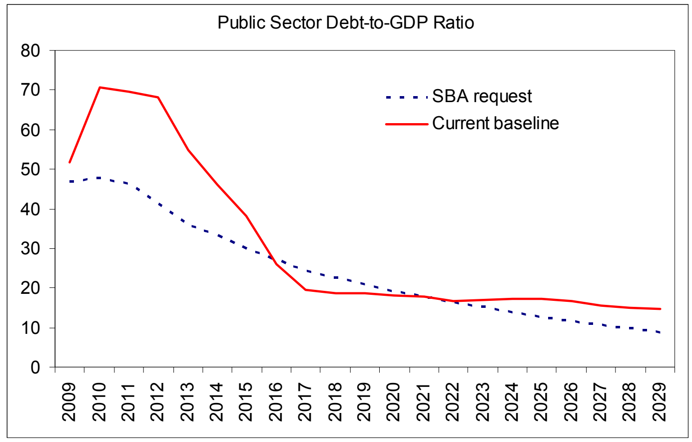


- After a period of consolidation **the overall fiscal deficit** is expected to converge to a new equilibrium. Fiscal revenues will be boosted by the project and are expected to reach 60 percent of nonmineral GDP in 2016. In the medium term, fiscal revenues are projected to gradually converge to 25 percent of overall GDP. The Fiscal Responsibility Law will reduce pro-cyclicality by restraining expenditure growth during periods of high mineral revenues and enable the authorities to save a substantial fraction of mineral revenues.

8. **The baseline assumes a strong institutional framework and macroeconomic policies to minimize Dutch disease effects.** Following the surge in mining production from the Oyu Tolgoi mine, Mongolia will likely experience a substantial real appreciation creating challenges to maintaining low inflation and developing the nonmineral economy. The baseline assumes a restrained fiscal policy, supported by the adoption of a Fiscal Responsibility Law, and a flexible exchange rate so that real exchange rate pressures feed though the nominal exchange rate. Finally, it assumes that structural fiscal reforms including pensions, civil service, and subsidy reforms will contribute to improve the business climate and the overall competitiveness of the economy. The authorities have made progress in becoming Extractive Transparency Industry Initiative (EITI) compliant by next year.

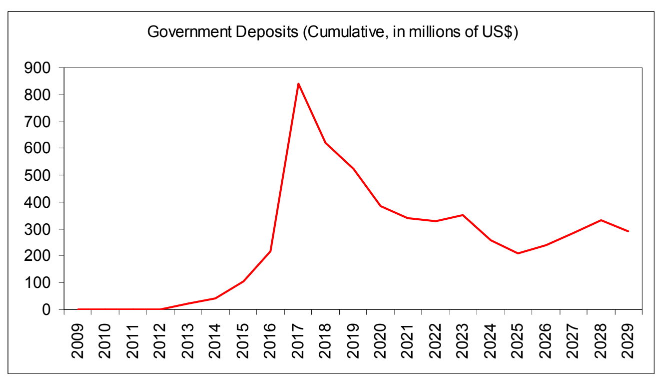
D. External and Public Debt Sustainability Analysis

9. **Mongolia's external risk of debt distress remains low (Figure. 1).** External debt ratios will remain broadly in line with the previous DSA over the medium term. Conversely, comparing the previous baseline debt ratios using the same respective PV of debt does not show a substantial difference. The one-off borrowing in 2009–10 will lead to a temporary but significant increase in the level of public debt but will fall rapidly in 2012–14. The debt service-to-exports and debt service-to-revenues ratios will peak in 2011–12 but will stay below the threshold. Pursuing fiscal adjustment in the period before the mining project comes into stream will be key.



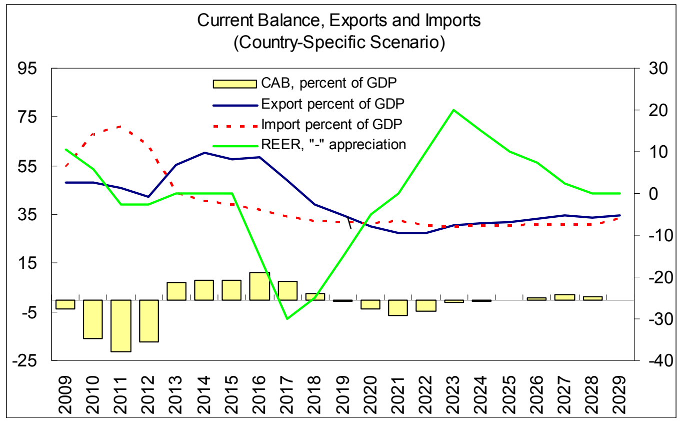
10. **Stress testing** shows that a one-time 30 percent exchange rate depreciation relative to the baseline in 2010 would breach the threshold over the 2010-12 period. However, with the Oyu Tolgoi mine starting production in 2013, the adverse effects of the depreciation would be gradually unwound. The exceptional access under the SBA and the broad program framework have bolstered international reserves and restored confidence in the currency making the probability of a depreciation of this magnitude relatively low.

11. **The risks for fiscal sustainability have increased over the medium term but remain low (Figure 2).** The baseline includes (i) fiscalization of the banking sector losses through domestic bond issuances, and (ii) loans to the government from the local mining company for acquiring the government's equity share and a pre-payment on future revenues. However, the government will receive dividends from its 34 percent equity share and government deposits are expected to increase providing a comfortable fiscal reserve cushion.



E. Country-Specific Alternative Scenario[5]

12. **The scenario assumes a more sizable real appreciation than the baseline.** When mineral revenues start materializing they will create macroeconomic challenges. This scenario assumes that fiscal policy is loose and mining revenues are fully spent over the medium to long term. Monetary policy can only counteract inflationary pressures resulting from the fiscal expansion by allowing the nominal exchange rate to adjust. Hence, the scenario assumes a significant real exchange rate appreciation and a deterioration in the current account balance over the long term. However, this country-specific alternative scenario does not result in indicators significantly breaching thresholds.



F. Conclusions

13. **The overall assessment has not changed with the last DSA and the external DSA indicates that Mongolia remains at low risk of external debt distress.** The short-term macroeconomic outlook has improved due to strong performance under the SBA and a more favorable global outlook than envisaged at the outset of the program. The increase in domestic debt, albeit from a low level, does not lead to a different sustainability assessment that under the external DSA.

[5] In the last joint Bank-Fund DSA (Country Report No. 09/130), a 20 percent lower copper price than in the baseline scenario (US$4,500/ton vs. US$5,100/ton in the current baseline) during 2010–15 showed that the economy remained vulnerable to changes in commodity prices despite the substantial increase in export volumes expected with the Oyu Tolgoi mining project.

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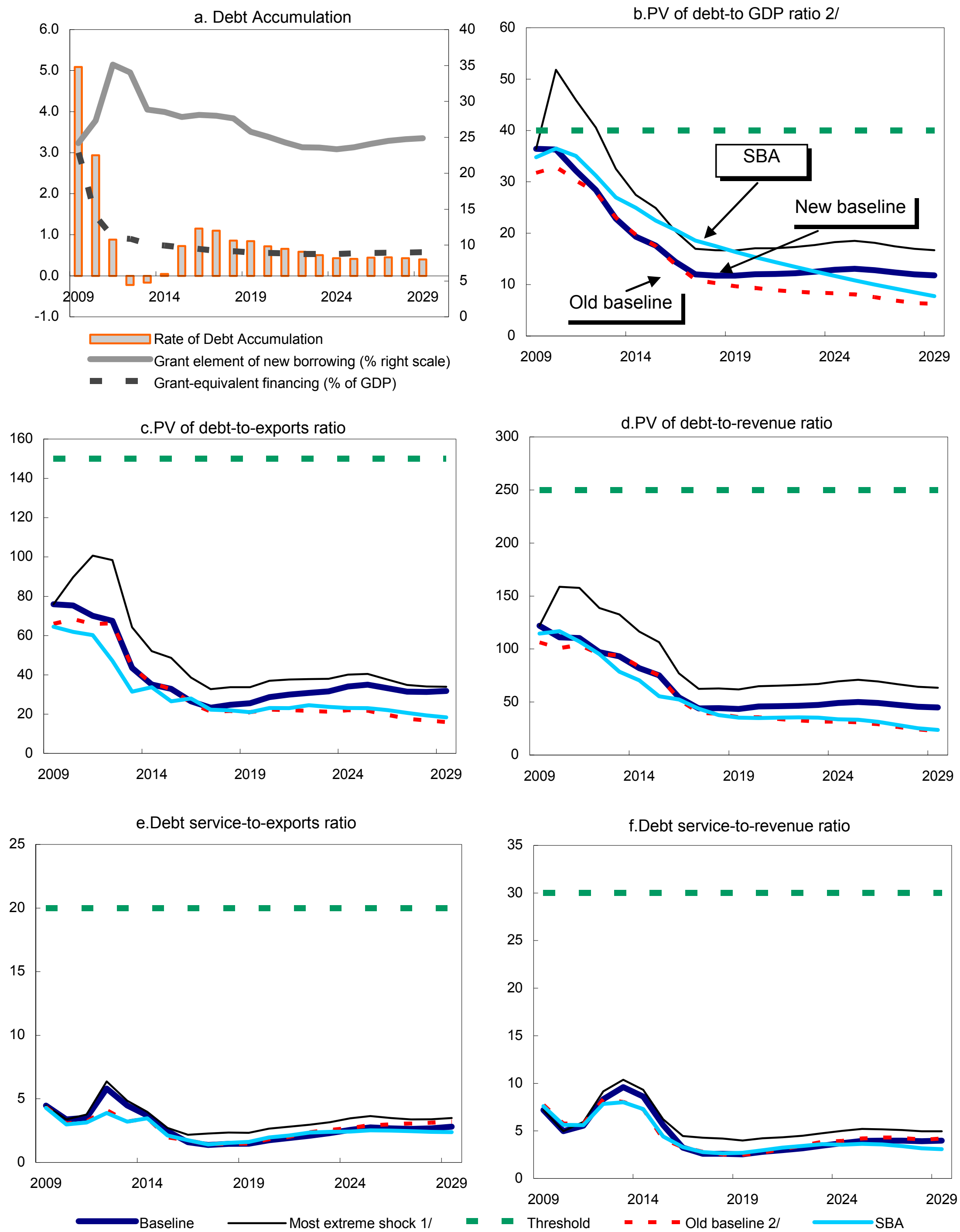
Figure 1. Mongolia: Indicators of Public and Publicly Guaranteed External Debt Under Alternatives Scenarios, 2009–2029 1/

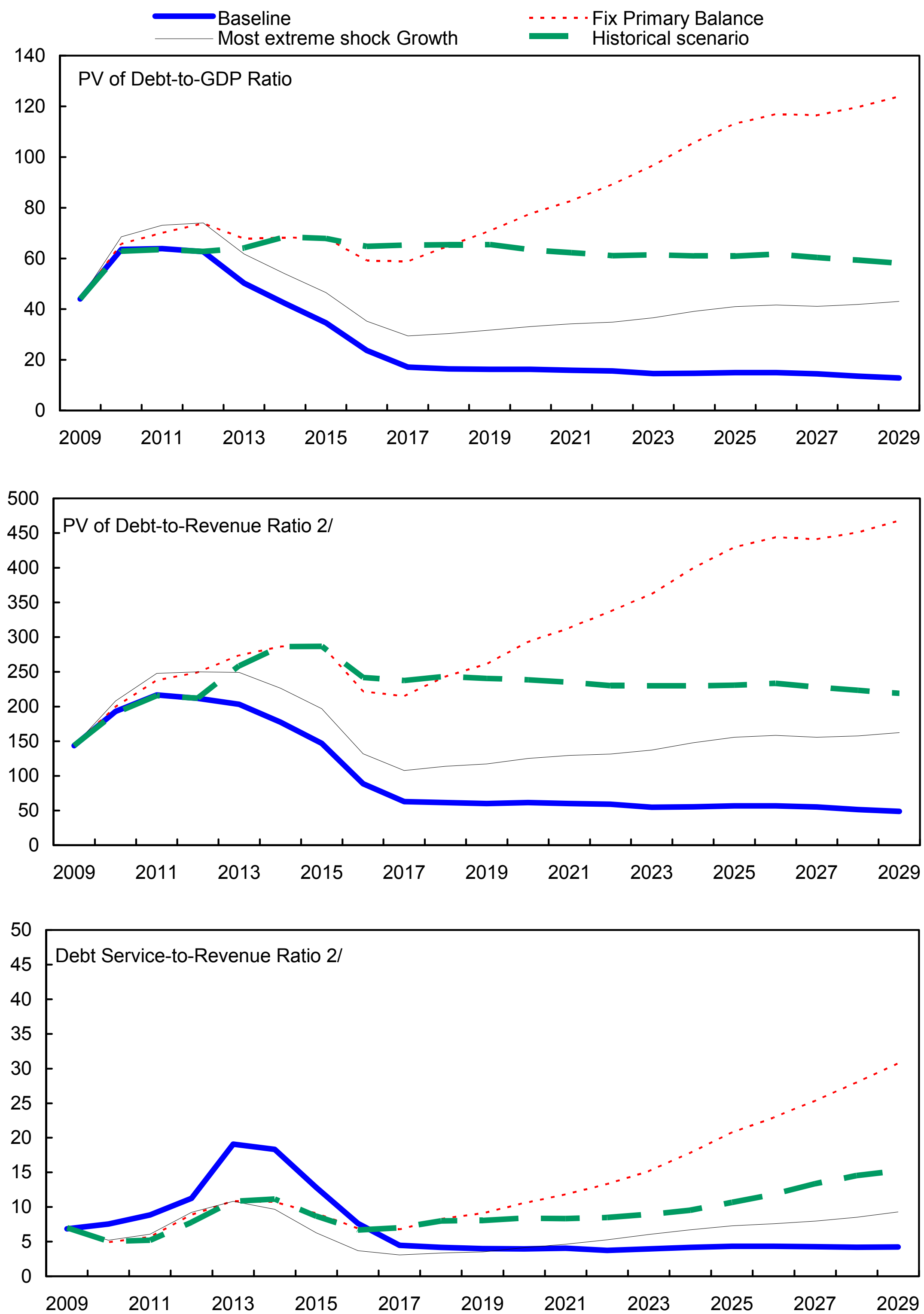


Source: IMF staff projections and simulations.

1/ The most extreme stress test is the test that yields the highest ratio in 2019. In figure b., it corresponds to a one-time depreciation shock; in c. to a exports shock; in d. to a one-time depreciation shock; in e. to a exports shock and in picture f. to a exports shock.

2/ Third review debt assumptions with SBA request macro assumptions.

Figure 2. Mongolia: Indicators of Public Debt Under Alternative Scenarios, 2009–2029 1/



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

1/ The most extreme stress test is the test that yields the highest ratio in 2019.
2/ Revenues are defined inclusive of grants.

Table 1. External Debt Sustainability Framework, Baseline Scenario, 2006–2029 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical	Standard 6/	Projections									
	2006	2007	2008	Average	Deviation	2009	2010	2011	2012	2013	2014	2009-2014 Average	2019	2029	2015-2029 Average
External debt (nominal) 1/	45.1	40.1	34.7			48.0	59.8	68.4	86.9	68.0	52.4		17.1	14.1	
Of which: public and publicly guaranteed (PPG)	44.3	38.9	33.9			45.3	44.2	36.3	34.3	27.6	23.5		14.0	13.8	
Change in external debt	-16.2	-5.0	-5.3			13.3	11.8	8.6	18.5	-18.9	-15.6		-1.1	-0.3	
Identified net debt-creating flows	-32.7	-24.8	-11.7			-2.7	-0.4	4.0	13.0	-24.0	-15.8		-7.7	0.9	
Non-interest current account deficit	-7.5	-7.1	13.7	2.3	7.5	3.2	15.6	20.7	17.0	-8.5	-7.6		-6.8	2.2	-3.1
Deficit in balance of goods and services	-4.8	-2.7	15.6			6.5	19.6	25.0	20.8	-8.6	-14.6		-11.7	0.4	
Exports	64.4	64.2	58.3			48.1	48.2	46.0	42.1	52.4	55.2		46.1	37.0	
Imports	59.6	61.5	73.9			54.6	67.8	71.0	62.9	43.8	40.6		34.3	37.5	
Net current transfers (negative = inflow)	-2.4	-2.1	-1.8	-3.4	2.5	-1.4	-1.5	-1.7	-1.7	-1.7	-1.7		-1.7	-1.6	-1.7
Of which: official	-3.5	-3.4	-1.7			-3.2	-3.1	-2.2	-2.7	-1.4	-0.8		-0.1	0.0	
Other current account flows (negative = net inflow)	-0.3	-2.3	-0.1			-1.9	-2.5	-2.7	-2.1	1.8	8.6		6.6	3.4	
Net FDI (negative = inflow)	-9.2	-9.2	-16.2	-7.9	4.0	-6.9	-12.7	-13.8	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Endogenous debt dynamics 2/	-16.0	-8.5	-9.2			1.0	-3.3	-2.8	-3.0	-14.5	-7.2		0.1	-0.2	
Contribution from nominal interest rate	0.5	0.4	0.3			0.6	0.5	0.5	0.5	4.0	3.5		0.5	0.2	
Contribution from real GDP growth	-3.8	-3.7	-2.7			0.4	-3.8	-3.3	-3.5	-18.4	-10.8		-0.4	-0.4	
Contribution from price and exchange rate changes	-12.6	-5.2	-6.8			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	16.5	19.8	6.4			16.0	12.1	4.6	5.6	5.1	0.2		6.6	-1.2	
Of which: exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	27.1			39.2	51.9	64.2	81.1	63.2	48.2		14.8	12.1	
In percent of exports	...	...	46.5			81.5	107.8	139.8	192.4	120.6	87.3		32.2	32.7	
PV of PPG external debt	...	...	26.3			36.5	36.3	32.2	28.4	22.8	19.3		11.7	11.8	
In percent of exports	...	...	45.1			75.9	75.3	70.0	67.5	43.5	35.0		25.5	31.8	
In percent of government revenues	...	...	73.4			122.1	111.1	110.3	97.1	93.2	81.9		43.6	44.9	
Debt service-to-exports ratio (in percent)	5.9	6.5	4.4			4.5	3.4	3.5	5.8	15.7	19.0		4.1	2.8	
PPG debt service-to-exports ratio (in percent)	5.4	4.3	3.6			4.5	3.4	3.5	5.8	4.5	3.7		1.5	2.8	
PPG debt service-to-revenue ratio (in percent)	9.5	6.8	5.9			7.2	5.0	5.5	8.3	9.6	8.6		2.5	4.0	
Total gross financing need (billions of U.S. dollars)	-0.4	-0.5	0.0			0.0	0.2	0.5	1.2	0.0	0.2		-1.1	0.8	
Non-interest current account deficit that stabilizes debt ratio	8.6	-2.1	19.1			-10.1	3.8	12.1	-1.5	10.4	8.0		-5.7	2.4	
Key macroeconomic assumptions															
Real GDP growth (in percent)	8.6	10.2	8.9	6.5	3.3	-1.0	8.6	6.5	5.8	26.3	18.8	10.8	2.3	3.1	5.7
GDP deflator in U.S. dollar terms (change in percent)	26.0	13.0	20.3	10.0	10.4	-13.2	-0.1	8.6	6.2	-2.0	-0.3	-0.1	4.9	2.2	2.8
Effective interest rate (percent) 5/	1.2	1.1	0.9	1.8	0.7	1.5	1.2	1.0	0.8	5.6	6.2	2.7	2.9	1.5	2.5
Growth of exports of G&S (U.S. dollar terms, in percent)	36.9	24.2	18.9	19.7	16.0	-29.0	8.8	10.3	3.0	54.1	24.5	11.9	4.1	1.6	6.0
Growth of imports of G&S (U.S. dollar terms, in percent)	19.5	28.5	57.4	19.8	16.1	-36.4	34.8	21.0	-0.4	-13.8	9.8	2.5	8.8	7.1	8.0
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	24.2	27.3	35.1	34.0	28.9	28.5	29.7	25.8	24.9	25.3
Government revenues (excluding grants, in percent of GDP)	36.5	40.4	35.8			29.9	32.7	29.2	29.3	24.5	23.6		26.9	26.2	26.2
Aid flows (in billions of U.S. dollars) 7/	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	
Of which: Grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	
Of which: Concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			3.0	1.4	0.9	0.9	0.8	0.7		0.6	0.6	0.6
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			24.2	27.3	35.1	34.0	28.9	35.9		35.6	37.4	36.3
Memorandum items:															
Nominal GDP (billions of U.S. dollars)	3.2	3.9	5.1			4.4	4.8	5.6	6.2	7.7	9.1		20.6	30.7	
Nominal dollar GDP growth	36.8	24.5	31.0			-14.0	8.5	15.6	12.4	23.8	18.3	**10.8**	7.4	5.3	8.7
PV of PPG external debt (in billions of U.S. dollars)			1.4			1.6	1.7	1.8	1.8	1.8	1.8		2.4	3.6	
(PVt-PVt-1)/GDPt-1 (in percent)						**5.1**	2.9	0.9	-0.2	-0.2	0.0	1.4	0.8	0.4	0.6

Source: Staff simulations.

1/ Includes both public and private sector external debt.

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

3/ 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.

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

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

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

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 2. Mongolia: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005–2029

(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2006	2007	2008	Average	Standard Deviation 5/	2009	2010	2011	2012	2013	2014	2009-14 Average	2019	2029	2015-29 Average
Public sector debt 1/	44.3	38.9	33.9			51.6	70.8	69.5	68.0	54.7	46.2		18.6	14.7	
Of which: foreign-currency denominated	44.3	38.9	33.9			45.3	44.2	36.3	34.3	27.6	23.5		14.0	13.8	
Change in public sector debt	-15.4	-5.5	-5.0			17.7	19.1	-1.2	-1.5	-13.3	-8.6		-0.2	-0.3	
Identified debt-creating flows	-25.7	-11.6	-2.0			12.6	3.2	-10.1	-4.0	-16.7	-15.0		-3.1	-1.2	
Primary deficit	-8.7	-3.2	4.6	1.3	5.0	6.0	3.6	1.2	0.4	-2.9	-5.9	0.4	-2.0	-0.5	-1.9
Revenue and grants	36.6	40.9	36.1			30.7	33.0	29.5	29.6	24.8	23.8		27.1	26.5	
Of which: grants	0.1	0.5	0.3			0.8	0.3	0.3	0.3	0.2	0.2		0.2	0.3	
Primary (noninterest) expenditure	27.9	37.6	40.6			36.7	36.6	30.7	30.0	21.9	17.9		25.1	25.9	
Automatic debt dynamics	-16.6	-8.0	-6.4			4.4	-4.6	-10.9	-4.0	-13.6	-8.9		-0.9	-0.6	
Contribution from interest rate/growth differential	-15.5	-8.4	-8.9			6.1	-3.9	-8.4	-6.2	-13.5	-8.9		-1.1	-0.6	
Of which: contribution from average real interest rate	-10.8	-4.2	-5.7			5.8	0.2	-4.1	-2.4	0.6	-0.2		-0.6	-0.1	
Of which: contribution from real GDP growth	-4.7	-4.1	-3.2			0.3	-4.1	-4.3	-3.8	-14.1	-8.6		-0.4	-0.4	
Contribution from real exchange rate depreciation	-1.0	0.4	2.5			-1.8	-0.7	-2.5	2.2	0.0	0.0		...	...	
Other identified debt-creating flows	-0.4	-0.4	-0.1			2.3	4.2	-0.4	-0.4	-0.3	-0.2		-0.1	-0.1	
Privatization receipts (negative)	-0.4	-0.4	-0.1			-0.5	-0.5	-0.4	-0.4	-0.3	-0.2		-0.1	-0.1	
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	
Bank restructuring	0.0	0.0	0.0			2.8	4.6	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	10.3	6.2	-3.0			5.1	15.9	8.9	2.5	3.4	6.4		2.8	0.8	
Other Sustainability Indicators															
PV of public sector debt	0.0	0.0	28.5			44.1	63.6	63.8	62.6	50.3	42.3		16.3	12.8	
Of which: foreign-currency denominated	0.0	0.0	28.5			37.8	37.0	30.6	28.9	23.2	19.7		11.7	12.0	
Of which: external	...	...	28.5			37.8	37.0	30.6	28.9	23.2	19.7		11.7	12.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-5.3	-0.5	6.8			8.1	6.1	3.8	3.7	1.8	-1.5		-0.9	0.6	
PV of public sector debt-to-revenue and grants ratio (in percent)	0.0	0.0	79.0			143.5	192.8	216.5	211.5	203.2	177.5		60.0	48.5	
PV of public sector debt-to-revenue ratio (in percent)	0.0	0.0	79.6			147.5	194.7	218.8	213.8	205.3	179.1		60.5	49.0	
Of which: external 3/	…	…	79.6			126.5	113.2	105.0	98.7	94.7	83.3		43.7	45.6	
Debt service-to-revenue and grants ratio (in percent) 4/	9.3	6.8	6.0			6.8	7.6	8.9	11.3	19.1	18.3		4.0	4.2	
Debt service-to-revenue ratio (in percent) 4/	9.4	6.9	6.1			7.0	7.6	8.9	11.4	19.3	18.5		4.0	4.3	
Primary deficit that stabilizes the debt-to-GDP ratio	6.7	2.2	9.6			-11.8	-15.5	2.4	1.9	10.4	2.7		-1.8	-0.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	8.6	10.2	8.9	6.5	3.3	-1.0	8.6	6.5	5.8	26.3	18.8	10.8	2.3	3.1	5.7
Average nominal interest rate on forex debt (in percent)	1.2	1.1	0.9	1.8	0.7	1.6	1.2	1.3	1.4	1.5	1.5	1.4	1.5	1.5	1.5
Real exchange rate depreciation (in percent, + indicates depreciation)	-2.3	1.0	8.4	0.8	3.3	-4.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	23.1	12.3	20.2	13.3	6.4	7.5	6.0	5.6	2.9	1.4	3.1	4.4	4.1	5.7	4.7
Growth of real primary spending (deflated by GDP deflator, in percent)	0.1	0.5	0.2	0.1	0.2	-0.1	0.1	-0.1	0.0	-0.1	0.0	0.0	0.1	0.0	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	24.2	27.3	35.1	34.0	28.9	28.5	29.7	25.8	24.9	...

Sources: Mongolian authorities; and Fund staff estimates and projections.

1/ General government or nonfinancial public sector, gross debt.
2/ 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.
3/ Revenues excluding grants.
4/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 3. Mongolia: Sensitivity Analysis for Key Indicators of Public Debt 2009-2029

	Projections							
	2009	2010	2011	2012	2013	2014	2019	2029
PV of Debt-to-GDP Ratio								
Baseline	44	64	64	63	50	42	16	13
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	44	63	63	62	63	68	66	60
A2. Primary balance is unchanged from 2009	44	66	70	73	67	68	71	126
A3. Permanently lower GDP growth 1/	44	64	65	65	53	46	25	44
A4. Alternative Scenario :[Costumize, enter title]	45	69	72	69	67	67	52	32
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	44	68	73	74	62	54	32	43
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	44	66	70	69	56	47	20	11
B3. Combination of B1-B2 using one half standard deviation shocks	44	66	69	69	57	49	26	30
B4. One-time 30 percent real depreciation in 2010	44	79	77	75	61	51	21	15
B5. 10 percent of GDP increase in other debt-creating flows in 2010	44	73	72	70	57	48	20	12
PV of Debt-to-Revenue Ratio 2/								
Baseline	144	203	218	212	201	175	59	48
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	144	200	216	210	253	281	239	223
A2. Primary balance is unchanged from 2009	144	210	238	247	269	281	259	467
A3. Permanently lower GDP growth 1/	144	205	223	220	213	190	91	162
A4. Alternative Scenario :[Costumize, enter title]	147	260	274	260	250	252	198	123
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	144	218	249	250	246	223	116	161
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	144	211	240	233	223	195	71	41
B3. Combination of B1-B2 using one half standard deviation shocks	144	211	236	234	228	204	95	110
B4. One-time 30 percent real depreciation in 2010	144	254	263	255	243	212	75	57
B5. 10 percent of GDP increase in other debt-creating flows in 2010	144	232	245	238	228	199	74	43
Debt Service-to-Revenue Ratio 2/								
Baseline	7	8	9	11	19	18	4	4
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	7	5	5	8	11	11	8	15
A2. Primary balance is unchanged from 2009	7	5	6	9	11	10	9	30
A3. Permanently lower GDP growth 1/	7	5	6	8	9	8	3	8
A4. Alternative Scenario :[Costumize, enter title]	7	6	5	8	9	9	4	6
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	7	5	6	9	11	10	3	9
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	7	5	6	9	10	9	2	2
B3. Combination of B1-B2 using one half standard deviation shocks	7	5	6	9	10	9	3	6
B4. One-time 30 percent real depreciation in 2010	7	6	8	12	14	12	3	5
B5. 10 percent of GDP increase in other debt-creating flows in 2010	7	5	7	9	10	9	2	2

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

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the length of the projection period.

2/ Revenues are defined inclusive of grants.

Table 4a.Mongolia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2009-2029
(In percent)

	Projections							
	2009	2010	2011	2012	2013	2014	**2019**	2029
PV of debt-to GDP ratio								
Baseline	36	36	32	28	23	19	**12**	12
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	36	28	17	0	2	3	**16**	-15
A2. New public sector loans on less favorable terms in 2009-2029 2	36	36	32	29	24	20	**12**	13
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	36	38	35	31	25	21	**13**	13
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	36	38	37	33	27	23	**13**	12
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	36	36	35	31	25	21	**13**	13
B4. Net nondebt creating flows at historical average minus one standard deviation in 2010-2011 4/	36	43	46	41	34	29	**16**	13
B5. Combination of B1-B4 using one-half standard deviation shocks	36	39	41	37	30	25	**14**	13
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	36	52	46	41	33	27	**17**	17
PV of debt-to-exports ratio								
Baseline	76	75	70	67	44	35	**25**	32
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	76	59	36	0	4	5	**34**	-39
A2. New public sector loans on less favorable terms in 2009-2029 2	76	75	70	69	45	37	**27**	34
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	76	75	70	67	43	35	**25**	31
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	76	83	90	87	57	46	**32**	36
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	76	75	70	67	43	35	**25**	31
B4. Net nondebt creating flows at historical average minus one standard deviation in 2010-2011 4/	76	90	101	98	64	52	**34**	34
B5. Combination of B1-B4 using one-half standard deviation shocks	76	80	83	81	52	42	**29**	32
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	76	75	70	67	43	35	**25**	31
PV of debt-to-revenue ratio								
Baseline	122	117	111	97	92	81	**43**	44
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	122	91	57	0	8	12	**58**	-55
A2. New public sector loans on less favorable terms in 2009-2029 2	122	117	112	99	95	85	**45**	48
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	122	123	121	106	100	87	**46**	48
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	122	122	128	113	108	94	**48**	45
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	122	117	122	106	101	88	**47**	48
B4. Net nondebt creating flows at historical average minus one standard deviation in 2010-2011 4/	122	139	160	142	136	120	**57**	47
B5. Combination of B1-B4 using one-half standard deviation shocks	122	127	143	126	120	106	**52**	48
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	122	167	159	139	131	115	**61**	63

Source: Staff projections and simulations.

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.

Table 4b.Mongolia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2009-2029 (continued)
(In percent)

	Projections							
	2009	2010	2011	2012	2013	2014	**2019**	2029
Debt service-to-exports ratio								
Baseline	4	3	4	6	4	4	**1**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	4	3	3	5	3	3	**0**	0
A2. New public sector loans on less favorable terms in 2009-2029 2	4	3	3	4	2	2	**1**	2
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	4	3	4	6	4	4	**1**	3
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	4	4	4	7	5	4	**2**	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	4	3	4	6	4	4	**1**	3
B4. Net nondebt creating flows at historical average minus one standard deviation in 2010-2011 4/	4	3	4	6	5	4	**2**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	4	3	4	6	4	4	**2**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	4	3	4	6	4	4	**1**	3
Debt service-to-revenue ratio								
Baseline	7	5	6	8	9	8	**3**	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	7	5	5	7	7	7	**0**	0
A2. New public sector loans on less favorable terms in 2009-2029 2	7	5	5	5	5	5	**2**	2
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	7	6	6	9	10	9	**3**	4
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	7	5	6	9	10	9	**3**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	7	5	6	9	10	9	**3**	4
B4. Net nondebt creating flows at historical average minus one standard deviation in 2010-2011 4/	7	5	6	9	10	9	**4**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	7	5	6	9	10	9	**3**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	7	7	8	12	14	12	**4**	6
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	26	26	26	26	26	26	**26**	26

Source: Staff projections and simulations.

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.