INTERNATIONAL MONETARY FUND
INTERNATIONAL DEVELOPMENT ASSOCIATION

MONGOLIA

Joint IMF/World Bank Debt Sustainability Analysis Under the Debt Sustainability Framework for Low-Income Countries[1]

Approved by Nigel Chalk and Anthony Boote (IMF)
and Carlos Braga and Vikram Nehru (IDA)

March 18, 2009

The staff's debt sustainability analysis shows that Mongolia is at low risk of external debt distress. Although the debt ratios will rise significantly over the next two years as the government receives front-loaded foreign financing to recover from a major terms of trade shock, the debt outlook is expected to recover and improve over the medium term. Key medium-term risks involve large debt service in 2012−15 associated with the repayments to the International Monetary Fund (under the proposed SBA). Mongolia hardly has any domestic debt. If Mongolia manages its existing debt well and contracts new debt prudently, it should be able to ride out the effects of the adverse commodity shock and move to a new medium-term development path underpinned by the commodity sector.

I. Background

1. **This update reflects the macroeconomic framework underlying the new Stand-By Arrangement and staff projections through 2029**. It assumes that the implementation of prudent macroeconomic and structural policies, including the establishment of a fiscal framework to avoid procyclical policies over the commodity price cycle will help Mongolia recover from the current downturn and resume sustainable growth.[2]

[1] The DSA has been produced jointly by the staffs of the International Monetary Fund and the World Bank, in consultation with the Asian Development Bank and the Mongolian authorities (Ministry of Finance, Debt Management Division). The fiscal year for Mongolia is January-December 2009.

[2] The DSAs presented in this document are based on the common standard LIC DSA framework. Under the Country Policy and Institutional Assessment (CPIA) Mongolia is rated as a medium performer, and the debt sustainability analysis uses the indicative threshold indicators for countries in this category. See "Debt Sustainability in Low-Income Countries: Proposal for an Operational Framework and Policy Implications" (http://www.imf.org/external/np/pdr/sustain/2004/020304.htm and IDA/SECM2004/0035, 2/3/04) and "Debt Sustainability in Low-Income Countries: Further Considerations on an Operational Framework, Policy Implications" (http://www.imf.org/external/np/pdr/sustain/2004/091004.htm and IDA/SECM2004/0629,

(continued)

In particular, by 2012−13 the development of the country's mineral resources is expected to spur economic growth and boost exports well into the medium term.

2. **Mongolia's stock of external debt as of end-2008 is estimated at US$1.7 billion (35.8 percent of GDP)**. This includes public or publicly-guaranteed debt (PPG) of US$1.6 billion as reported by the Ministry of Finance and estimated private external debt of US$0.1 billion. Most of Mongolia's public debt is external with about 61 percent of external debt contracted with multilateral creditors on concessional terms and the remainder with official bilateral creditors.

Mongolia: Structure of External Public Debt, 2008

	In US$	In percent of GDP	Net Present Value in US$
Public debt	1,601	33.1	1,218
Multilaterals	984	20.3	682
IMF	20	0.4	18
World Bank	338	7.0	206
AsDB	575	11.9	415
Official bilateral	600	12.4	521
Paris Club	492	10.2	424
Non-Paris Club	108	2.2	97
Commercial	17	0.3	16

Source: Mongolian Ministry of Finance, AsDB, Bank and Fund staff estimates.

3. **Several years of strong growth and prudent debt management policies have helped reduce Mongolia's external PPG debt burden**. During the last five years, the PPG external debt has fallen to 33 percent of GDP in 2008 from 87 percent of GDP in 2003. The ratio of debt service to exports has fallen to 4 percent in 2008 from 23 percent in 2000. During the last three years, the composition of debt has shifted away slightly from multilateral to bilateral creditors resulting in a lower degree of concessionality.[3] The latest Debt Management Performance Assessment (DeMPA) concluded that Mongolia scores relatively high on indicators such as strategy development, coordination with macroeconomic policies, recording and reporting, which is important considering the baseline with large upfront borrowing.[4]

II. Developments in 2009

4. **The near-term debt outlook will be adversely affected by the severe exogenous shock Mongolia is now facing**. Mongolia has been hit hard by the global financial crisis

9/10/04) and "Applying the Debt Sustainability Framework for Low-Income Countries Post Debt Relief," (http://www.imf.org/external/np/pp/eng/2006/110606.pdf and IDA/SecM2006-0564, 8/11/06).

[3] The average interest rate has increased and the average grace and maturity have become shorter.

[4] Conducted by the World Bank in June 2008, available at http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1226602826665/DeMPAMongoliaFinal_EN.pdf

through a sudden drop in the price of copper; export proceeds are expected to fall by more than US$800 million this year. The severe terms of trade shock has exacerbated the balance of payments and fiscal imbalances as evidenced by the 16 percent of GDP swing in the current account. As a result, the recent gains in lowering debt ratios now look set to be reversed as the government resorts to extraordinary external financing to address the balance of payments pressure. Part of the balance of payments gap is expected to be financed with the proposed US$224 million (SDR 153.3 million) Exceptional Access Stand-By Arrangement from the Fund, and additional support from other international financial institutions (IFIs), mainly IDA and the Asian Development Bank (AsDB). The authorities have approached donors to request additional support to cover unidentified financing during the course of the Fund arrangement.

III. Medium-Term Macro and DSA Assumptions

5. **Compared to the 2008 DSA conducted at the time of the 2008 Article IV the global environment has significantly worsened Mongolia's macroeconomic situation**.[5] Even under stress testing the previous DSA could not have foreseen the sharp downturn. Specifically, copper prices, Mongolia's main source of foreign exchange earnings have been halved since mid-2008. A fall in global demand—particularly China which absorbs the bulk of Mongolia's exports—has increased the country's vulnerabilities. As a result, the average real growth rate for 2009−10 has fallen by more than 4 percentage points as compared to the previous DSA and the current account has swung from a surplus of 7 percent of GDP in 2007 to a deficit of 10 percent of GDP in 2008. Government revenues and grants are on average 8 percent of GDP lower due to lower copper prices.

6. **The baseline macroeconomic framework takes into consideration the impact of the substantial fiscal adjustment for 2009−10, but assumes that the economy will return to sustained growth over the medium term, underpinned by the Oyu Tolgoi (OT) mining project**.[6]

- Growth is expected to remain low at close to 3 percent in 2009 due to the fall in copper exports and a decline in domestic demand driven by slowing credit growth and moderation in public sector wage increases as opposed to developments in recent years. Growth will rebound to 11 percent in 2012 supported by the development of

[5] IMF Country Report No. 08/200.

[6] Oyu Tolgoi is a copper and gold mine. In addition, the Tavan Tolgoi (TT) deposit, close to the border with China, if developed, would transform Mongolia into a major world coal producer. The TT project has not been incorporated in the underlying baseline macroeconomic framework due to the uncertainties about its size and time frame for development. Once TT materializes, it is projected to have an important short-term impact via increased equipment imports, FDI and loan inflows, and a medium to long-term beneficial impact on the current account, similar to OT.

the Oyu Tolgoi (OT) mine, which will start production in 2013. As Mongolia progresses toward a higher income level, the long run real GDP growth is expected to be 4½ percent.

- After a rebound in 2010−13, export growth is expected to average more than 18 percent over 2013−18, reflecting copper exports from the OT mine.[7] Similarly, the current account deficit is expected to amount to 6½ percent of GDP in 2009, and will remain in deficit until 2012 due to large imports of mining-related investment goods. After that point, the current account should gradually narrow before jumping to a substantial surplus in 2013 as the OT project comes on stream. Presuming the authorities choose to save a reasonable fraction of the mineral revenues from this project the current account is expected to converge to a steady state surplus of 5 percent of GDP by 2029.

- Given the up-front fiscal adjustment under the Fund-supported program, and a tightening of monetary policy, inflation is projected to slow to about 5 percent over the medium term.

- Fiscal revenues will be boosted by the OT project and are expected to reach 47 percent of GDP by 2019, gradually converging to 39 percent over the medium term. Expenditures are expected to decline steadily reaching 33 percent of GDP by 2029 by the end of the projection period consistent with the medium term fiscal framework to be put into place under the program.

- A stronger institutional framework will ensure that a greater proportion of windfall future mineral revenues are saved. By end-2009 the Government will submit to Parliament fiscal responsibility legislation that will include a structural fiscal rule with a reference to a conservative assumption on the medium-term level of copper prices and at a level that guarantees medium-term fiscal sustainability. As a result, the overall balance would be in substantial surplus in 2015−20 and would then gradually decline to reach a 1 percent surplus by 2029.

7. **Borrowing assumptions reflect Mongolia's move to middle-income status by 2013**.

- As the mining projects come on stream, Mongolia would become eligible for nonconcessional borrowing from both the IBRD and the AsDB in 2013. After that point concessional borrowing is projected to decline from 52 percent in 2014 to 27 percent by 2029.[8] Interest rates reflect IDA-blend terms and AsDB terms for

---

[7] WEO projections are used for copper prices through 2014 and then assumed at US$4,500/tonne through 2029.

[8] Mongolia has already reached middle-income status according to IDA definition.

concessional borrowing and market conditions for commercial loans with borrowing rates at about 14 percent.

- Capital inflows, private external debt and portfolio investment, (which have all been negligible so far), in addition to foreign direct investment, are expected to increase, in line with developments of mining projects, and substantially help to sustain growth and build international reserves.

IV. Debt Sustainability

8. **Mongolia's external public debt ratios will remain low despite the need to resort to increased foreign financing in 2009 and 2010 to fill the large balance of payments and fiscal needs**.[9] The baseline public debt indicators move with the external debt indicators, since public debt consists largely of external debt.

- Substantial one-off borrowing is required to smooth adjustment to the large terms of trade shock. This will, however, lead to a temporary but significant increase in the level of external public debt. The development of the country's mineral resources should provide a comfortable level of financial resources to meet Mongolia's flow financing needs, which are most pressing in 2012−14 (see below). As a result, external public debt is forecast to fall from 48 percent in 2010 to 9 percent at the end of the simulation period, with the net present value falling from 37 percent in 2010 to 8 percent of GDP at the end of the simulation period.

- Total public debt consists largely of external debt and this is expected to remain in the medium term, given the relatively small domestic market and the large investments needed for mining infrastructure. The baseline public DSA results are very similar to the external DSA findings and present no concerns under the baseline case.

9. **Mongolia's risk of debt distress remains low**.[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, when the OT project comes online in 2013, the

---

[9].The debt burden thresholds for medium policy performer are 150, 40, and 250 for the PV of debt in percent of exports, GDP, and revenue, respectively. Under the same medium policy classification, thresholds for debt service are 20 percent and 30 percent of exports and revenue, respectively.

[10] The *Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries* defines a "low risk of debt distress" when: "All debt indicators are well below relevant country-specific debt-burden thresholds. Stress testing and country-specific alternative scenarios do not result in indicators significantly breaching thresholds. In case where only one indicator is above its benchmark, judgment is needed to determine whether there is a debt sustainability problem or some other issues, for example, a data problem.

adverse effects of the depreciation would be gradually unwound. In line with the OT project, government deposits are expected to rapidly increase providing a comfortable fiscal reserve cushion.[11] Therefore, the development of the resource sector reflects a fundamental, permanent structural shift in the country's economy. This renders the historical scenario irrelevant as it systematically underestimates future growth prospects arising from the positive impact of significant investment in the mining project and exports growth. Although the debt service-to-exports and debt service-to-revenues ratios will peak in 2011−12, they will stay far below the thresholds. The exceptional access under the SBA and the broad program framework (including fiscal adjustment and monetary restraint), are intended to bolster reserves and restore confidence in the currency and should therefore make the probability of a real depreciation of this magnitude relatively low.

10. **The risk of public debt distress remains low**. As explained in the previous paragraph, the historical scenario is not applicable to Mongolia as the country is undergoing a structural shift. For similar reasons, fixing the primary balance permanently at the projected exceptional 2009 fiscal deficit of 6 percent of GDP cannot be considered a realistic worst-case scenario for Mongolia. We think the permanent growth shock scenario is unrealistic given Mongolia's mining prospects, although we did check that a prolonged growth shock would not endanger the PV of debt-to-GDP ratio. Although new exogenous shocks can never be ruled out, the Government's intention to instate a fiscal responsibility law will make Mongolia more robust.

11. **The maturity structure of debt contracted in 2009 could present some repayment clustering in 2012−2014**. The external public debt service should remain manageable, with the debt service-to-revenue ratios falling throughout the DSA horizon. However purchases under the SBA are expected to fall due in 2012−15 putting some pressure on the balance of payments. Reflecting these repayments, the external public debt service-to-exports ratio is expected to peak at 4 percent in 2012 before falling back to 2 percent over the long term.

V. Alternative Scenarios

Scenario 1: Sovereign Borrowing

12. **Under the Fund-supported program the Government is allowed to raise US$200 million of nonconcessional debt**. This scenario assumes that Mongolia will issue a US$200 million bond in 2009 with a five-year maturity. Given current market conditions, particularly for first-time issuers, the spread could be very high (1,500 bps over U.S. Treasury bonds)[12] (Box 1). However, a partial guarantee by an institution with a high

---

[11] The DSA is conservatively undertaken on a gross rather than on a net basis.

[12] Assuming the benchmark interest rate, the U.S. Treasury bond, to be 3 percent.

credit rating could help reduce the spread by several percentage points. There is no impact on overall demand as proceeds can not be used for additional spending beyond the program fiscal targets and will be used to cover bank any recapitalization costs that would be reflected in the 2010 budget financing.

13. **Under this sovereign borrowing scenario, external debt burden indicators would be slightly over the indicative policy thresholds**. The PV of public debt would rise to 42 percent of GDP, above the 40 percent of GDP threshold, before returning below 40 percent in 2011.

Scenario 2: Shock to Copper Price Scenario

14. **Copper is the main source of Mongolia's export earnings**. It accounted for 33 percent of 2008 merchandise exports. This scenario, assumes that the global recession will last longer than expected and copper prices will be on average 20 percent lower than in the baseline scenario (US$4,500/tonne) during 2010−15.

15. **Under this low copper price scenario external debt burden indicators breach the indicative policy thresholds**. The PV of debt-to-GDP ratio would increase significantly higher and breach the 40 percent threshold between 2011 and 2014. Overall, the external DSA in the low copper price scenario shows an economy that remains vulnerable to changes in commodity prices, despite the substantial increase in export volumes that are expected with the development of the OT mineral project.

VI. CONCLUSIONS

16. The external DSA indicates that Mongolia's external debt dynamics are subject to low risk of debt distress even though the country's risk has increased compared to the 2008 DSA due to a sharp deterioration in the macroeconomic outlook. This is a result of both a sharp deterioration in the terms of trade combined with loose domestic policies in the recent past. However, borrowing under the Stand-By Arrangement and other donor financing will increase debt ratios only during the next three years, and will be offset by Mongolia's substantial mineral wealth potential. Even in a scenario of a significant depreciation of the currency, external debt rises initially, but is brought steadily downward over time. Indeed, it is the staff's expectation, presuming prudent policies are brought to bear and a significant portion of the mineral-related flows are saved, that Mongolia could end up as a net external creditor by 2029.

Box 1. Prospects for a Sovereign Bond Issue by Mongolia

A simple ratings model amongst a sample of 44 rated emerging markets based on macroeconomic indicators such as CPI inflation, FX debt relative to FX reserves and trade openness suggests that Mongolia deserves a B rating with downward risks (speculative grade), which is similar to Fitch's recent assessment (Fitch, 2009). This puts it in the same league as Pakistan, Argentina, Lebanon, Ecuador and Ukraine.

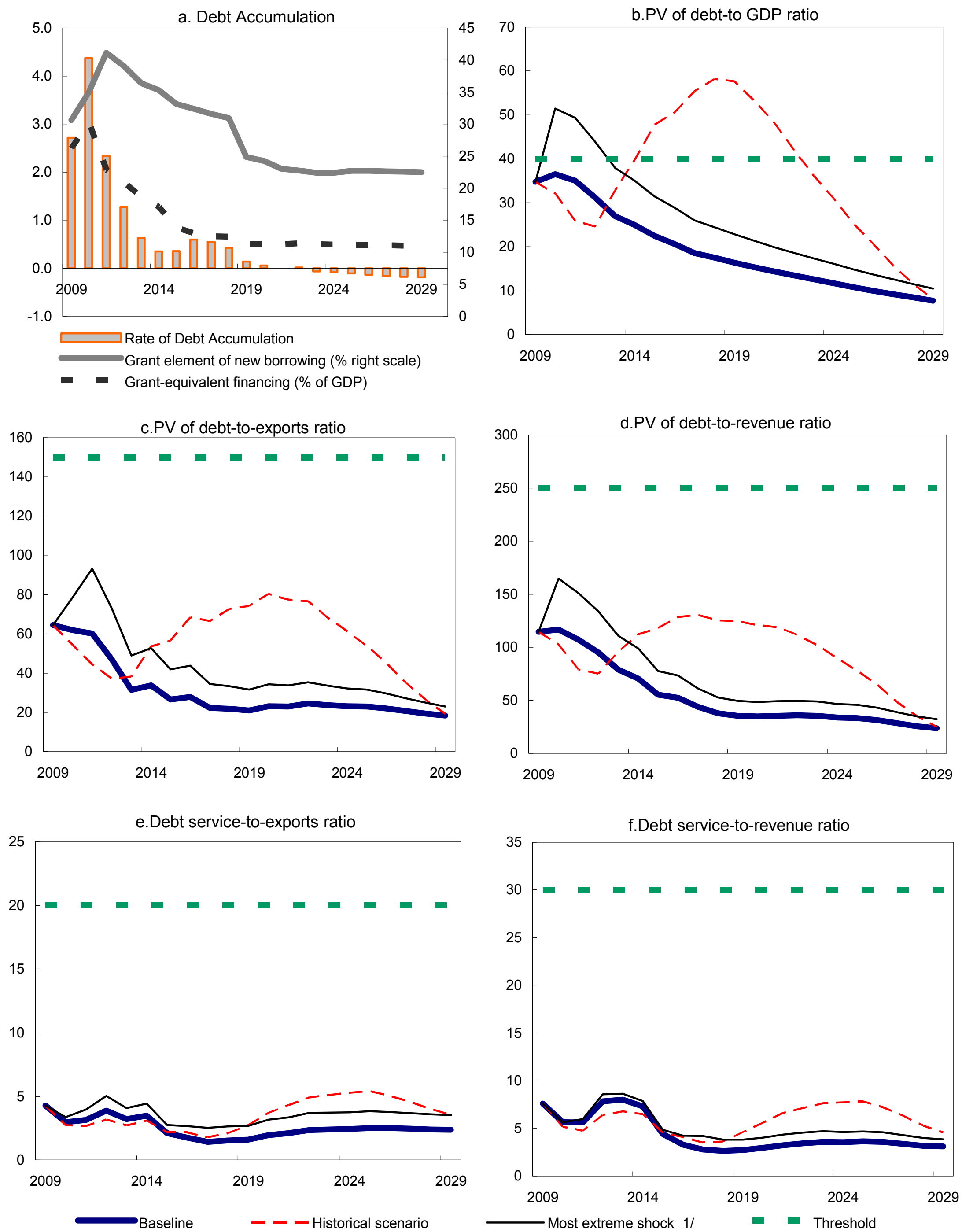
In a recent Credit Suisse (2009) report, strategists found that emerging market sovereign spreads can be explained quite well with the sovereign rating and the loans-to-deposits ratio, which reflects current investor concerns that the largest contingent liability for governments is a potential recapitalization of the banking sector. Applying this relationship to Mongolia's data, we estimate that Mongolia's sovereign spread would be about 1500bps under mid-February 2009 market conditions. This shows that the market conditions are very difficult for low-rated sovereigns (see also the table below). Moreover, a first-time issuer in financial difficulties may find it even more difficult to enter the market at this stage.

Recent Spreads on Sovereign Bond Issues

Country	Rating (S&P/Moody's)	Date	Amount (US$ million)	Amount (Percent of GDP)	Coupon (Percent)	Spread over benchmark (Basis points)
Jamaica	B/B1	Jun. 2008	350	2.6	8.00	417
Lebanon	CCC+/B3	Aug. 2008	500	1.8	8.50	504
Philippines	N.A./B1	Jan. 2009	1,500	0.9	8.38	600
Indonesia	Ba3/BB–	Feb. 2009	1,000	0.2	10.38	847

Sources: Bank Indonesia, Credit Suisse, Bloomberg, update from World Bank (February 2009), Mongolia Quarterly Economic Update. Available at http://www.worldbank.org/mn.

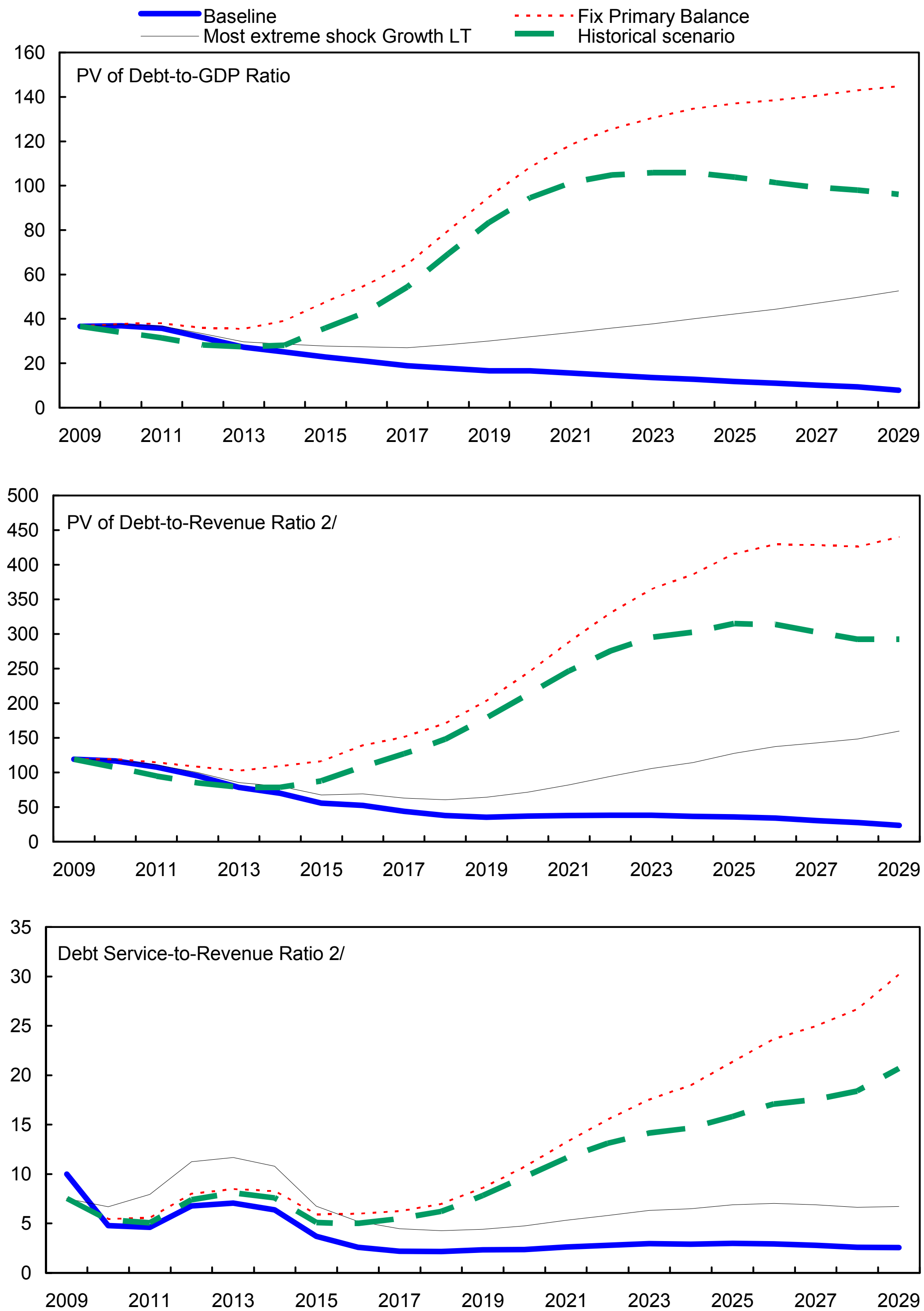
Figure 1. Mongolia: Indicators of Public and Publicly Guaranteed External Debt Under Alternatives Scenarios, 2009–2029 1/



Source: 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.

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

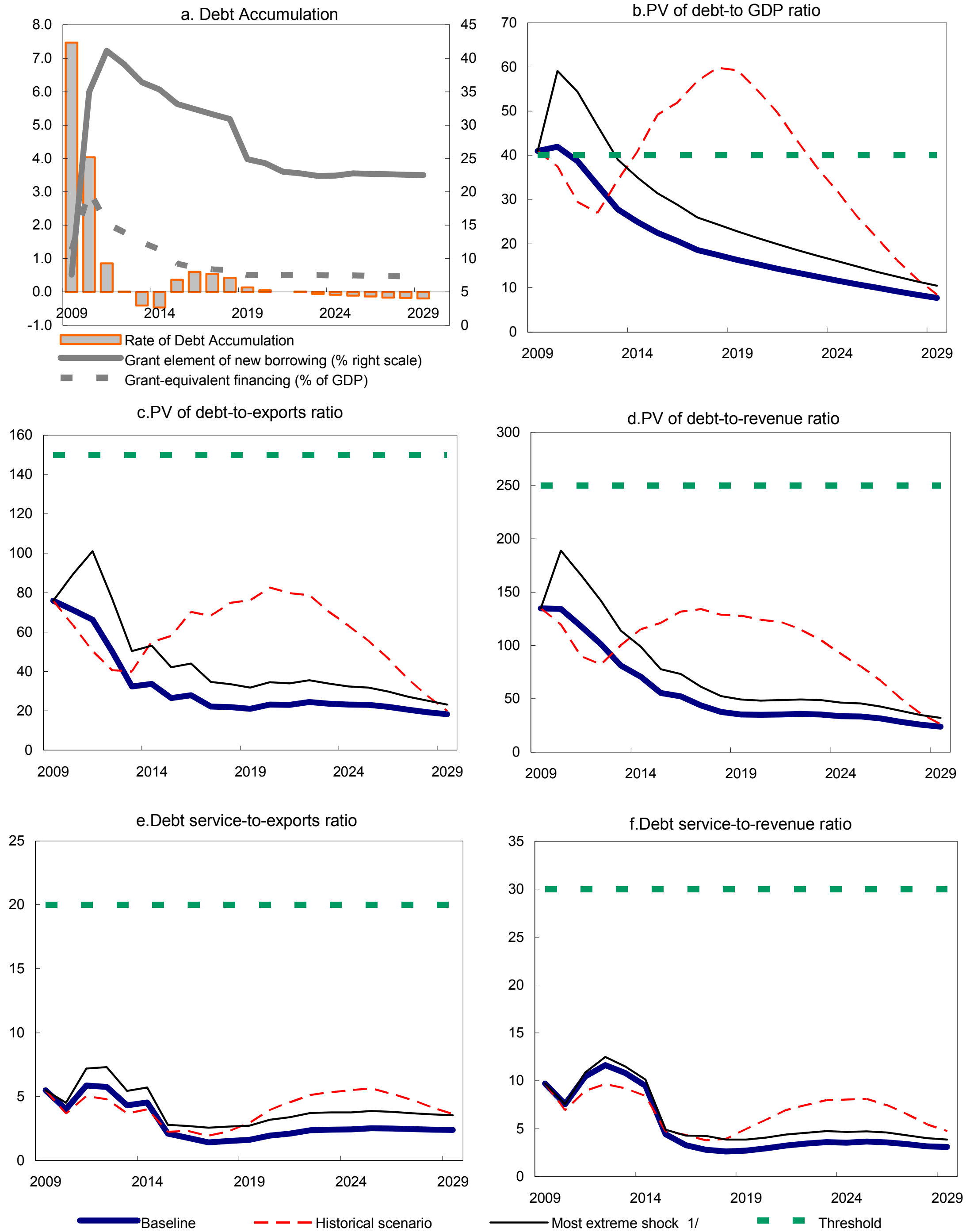


Sources: Country authorities; and Fund staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2019.

2/ Revenues are defined inclusive of grants.

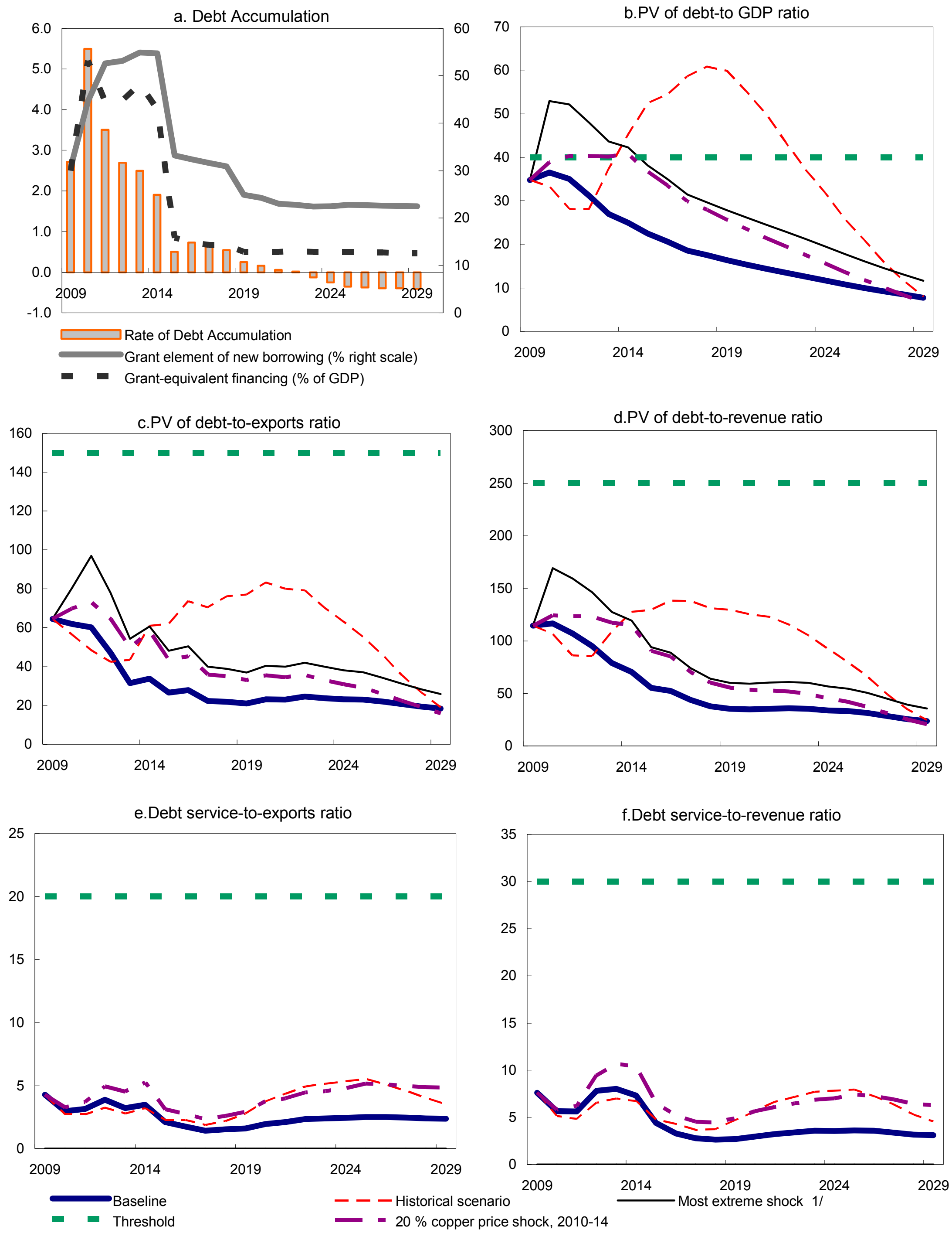
Figure 3. Mongolia: Indicators of Public and Publicly Guaranteed External Debt with Sovereign Bond, 2009–2029 1/



Source: 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.

Figure 4. Mongolia: Indicators of Public and Publicly Guaranteed External Debt Under Lower Copper Price Scenario, 2009–2029 1/



Source: 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.

Table 1. 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/	45.4	39.4	33.1			46.8	47.8	46.3	41.3	35.8	33.3		20.8	8.9	
Of which: foreign-currency denominated	44.3	38.9	33.1			46.8	47.8	45.9	41.1	35.8	33.3		20.8	8.9	
Change in public sector debt	-14.4	-6.0	-6.3			13.7	1.0	-1.5	-5.0	-5.5	-2.5		-1.8	-0.9	
Identified debt-creating flows	-25.6	-11.8	-2.6			13.6	-0.6	-1.2	-3.9	-6.1	-4.6		-16.8	-2.0	
Primary deficit	-8.6	-3.2	4.7	1.4	5.1	4.7	3.8	3.0	2.1	-0.4	-2.0	1.9	-15.5	-1.6	-6.9
Revenue and grants	36.6	40.9	35.2			30.8	31.6	33.1	33.1	34.6	35.8		46.6	32.9	
Of which: grants	0.1	0.5	0.3			0.3	0.3	0.4	0.3	0.3	0.3		0.3	0.3	
Primary (noninterest) expenditure	28.0	37.6	39.8			35.5	35.4	36.1	35.2	34.2	33.8		31.1	31.3	
Automatic debt dynamics	-16.6	-8.2	-7.1			9.2	-4.4	-4.2	-6.0	-5.8	-2.6		-1.3	-0.4	
Contribution from interest rate/growth differential	-15.6	-8.6	-9.7			10.7	-2.7	-4.1	-6.0	-5.8	-2.6		-1.3	-0.4	
Of which: contribution from average real interest rate	-10.9	-4.3	-6.5			11.5	-0.7	-1.4	-1.3	-1.0	-0.6		-0.1	0.0	
Of which: contribution from real GDP growth	-4.7	-4.2	-3.2			-0.9	-1.9	-2.7	-4.7	-4.8	-2.0		-1.2	-0.4	
Contribution from real exchange rate depreciation	-1.0	0.4	2.6			-1.4	-1.7	-0.1	0.0	0.0	0.0		...	...	
Other identified debt-creating flows	-0.4	-0.4	-0.1			-0.3	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	-0.4	-0.4	-0.1			-0.3	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	11.2	5.8	-3.7			0.1	1.6	-0.3	-1.1	0.7	2.1		15.0	1.1	
Other Sustainability Indicators															
PV of public sector debt	1.0	0.5	26.1			36.6	36.9	35.7	31.6	27.2	25.1		16.6	7.9	
Of which: foreign-currency denominated	0.0	0.0	26.1			36.6	36.9	35.3	31.4	27.2	25.1		16.6	7.9	
Of which: external	...	...	26.1			36.6	36.9	35.3	31.4	27.2	25.1		16.6	7.9	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-5.2	-0.5	6.8			7.8	5.3	4.5	4.4	2.1	0.3		-14.4	-0.7	
PV of public sector debt-to-revenue and grants ratio (in percent)	2.9	1.2	74.2			119.0	116.7	108.0	95.4	78.5	70.3		35.6	23.9	
PV of public sector debt-to-revenue ratio (in percent)	2.9	1.2	74.8			120.4	118.0	109.1	96.4	79.3	70.9		35.9	24.1	
Of which: external 3/	…	…	74.7			120.3	118.0	108.0	95.8	79.3	70.9		35.9	24.1	
Debt service-to-revenue and grants ratio (in percent) 4/	9.3	6.8	6.0			10.0	4.8	4.6	6.8	7.1	6.4		2.3	2.6	
Debt service-to-revenue ratio (in percent) 4/	9.4	6.9	6.1			10.1	4.8	4.7	6.9	7.1	6.5		2.4	2.6	
Primary deficit that stabilizes the debt-to-GDP ratio	5.9	2.8	10.9			-9.0	2.8	4.5	7.1	5.1	0.5		-13.7	-0.7	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	8.6	10.2	8.9	6.5	3.3	2.7	4.3	6.0	11.3	13.0	6.0	7.2	5.5	4.5	5.8
Average nominal interest rate on forex debt (in percent)	1.2	1.1	0.9	1.8	0.7	1.5	1.2	1.4	1.4	1.5	1.6	1.4	1.6	2.1	1.8
Real exchange rate depreciation (in percent, + indicates depreciation)	-2.3	1.0	8.7	0.9	3.4	-3.3	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	23.1	12.3	22.4	13.5	6.7	0.0	9.4	6.4	6.2	5.9	4.8	5.4	5.3	5.4	5.4
Growth of real primary spending (deflated by GDP deflator, in percent)	0.1	0.5	0.2	0.1	0.2	-0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	30.6	35.0	41.1	39.1	36.4	35.3	36.2	24.9	22.5	...

Sources: Country 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 2. 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	35.2			58.1	66.5	74.1	63.9	49.3	38.5		34.7	18.9	
Of which: public and publicly guaranteed (PPG)	44.3	38.9	33.1			46.8	47.8	45.9	41.1	35.8	33.3		20.8	8.9	
Change in external debt	-16.2	-5.0	-4.9			23.0	8.3	7.6	-10.2	-14.6	-10.8		-1.4	-1.3	
Identified net debt-creating flows	-32.7	-24.8	-13.5			-2.5	-3.7	-0.8	-13.7	-28.0	-24.7		-15.3	-4.8	
Non-interest current account deficit	-7.5	-7.1	9.3	1.8	6.8	5.4	4.8	8.8	0.1	-16.7	-17.5		-11.8	-1.9	-7.5
Deficit in balance of goods and services	-4.8	-2.7	11.7			11.6	11.0	13.9	4.8	-24.6	-18.6		-29.6	-6.0	
Exports	64.4	64.2	59.6			54.0	59.0	58.2	66.2	85.7	74.2		77.8	42.2	
Imports	59.6	61.5	71.4			65.6	69.9	72.1	71.0	61.1	55.6		48.2	36.2	
Net current transfers (negative = inflow)	-6.0	-5.5	-3.3	-8.6	3.0	-7.2	-7.0	-5.7	-5.1	-3.5	-2.9		-1.9	-1.8	-1.9
Of which: official	-3.5	-3.4	-1.4			-5.9	-5.3	-3.9	-3.3	-1.7	-1.1		-0.1	0.0	
Other current account flows (negative = net inflow)	3.2	1.1	0.9			1.0	0.7	0.6	0.5	11.4	3.9		19.7	5.9	
Net FDI (negative = inflow)	-9.2	-9.2	-13.0	-7.5	3.3	-7.8	-7.6	-8.3	-8.4	-5.5	-5.0		-3.0	-3.0	-3.0
Endogenous debt dynamics 2/	-16.0	-8.5	-9.8			0.0	-0.8	-1.4	-5.4	-5.8	-2.2		-0.5	0.1	
Contribution from nominal interest rate	0.5	0.4	0.3			1.2	1.5	2.2	1.8	1.3	0.5		1.3	1.0	
Contribution from real GDP growth	-3.8	-3.7	-2.7			-1.2	-2.3	-3.6	-7.2	-7.1	-2.7		-1.8	-0.8	
Contribution from price and exchange rate changes	-12.6	-5.2	-7.5			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	16.5	19.8	8.6			25.4	12.0	8.5	3.5	13.4	13.9		13.9	3.5	
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/	...	...	26.1			46.2	55.2	63.3	54.0	40.5	30.2		30.3	17.8	
In percent of exports	...	...	43.7			85.5	93.6	108.7	81.5	47.2	40.7		38.9	42.2	
PV of PPG external debt	...	...	24.0			34.8	36.5	35.1	31.2	27.0	25.0		16.4	7.7	
In percent of exports	...	...	40.2			64.5	61.9	60.2	47.1	31.5	33.7		21.0	18.3	
In percent of government revenues	...	...	68.7			114.4	116.8	107.2	95.1	78.7	70.4		35.4	23.8	
Debt service-to-exports ratio (in percent)	5.9	6.5	4.2			6.3	4.5	8.3	29.7	19.7	18.8		7.4	11.2	
PPG debt service-to-exports ratio (in percent)	5.4	4.3	3.5			4.3	3.0	3.2	3.9	3.2	3.5		1.6	2.4	
PPG debt service-to-revenue ratio (in percent)	9.5	6.8	5.9			7.6	5.6	5.6	7.8	8.0	7.3		2.7	3.1	
Total gross financing need (billions of U.S. dollars)	-0.4	-0.5	-0.1			0.1	0.0	0.3	0.7	-0.3	-0.5		-1.0	0.1	
Non-interest current account deficit that stabilizes debt ratio	8.6	-2.1	14.2			-17.6	-3.6	1.2	10.3	-2.1	-6.7		-10.4	-0.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	8.6	10.2	8.9	6.5	3.3	2.7	4.3	6.0	11.3	13.0	6.0	7.2	5.5	4.5	5.8
GDP deflator in U.S. dollar terms (change in percent)	26.0	13.0	22.9	10.2	10.7	-25.2	2.9	4.5	4.6	4.3	3.3	-0.9	2.2	2.2	2.3
Effective interest rate (percent) 5/	1.2	1.1	0.9	1.8	0.7	2.6	2.8	3.7	2.9	2.3	1.1	2.6	4.0	5.1	4.2
Growth of exports of G&S (U.S. dollar terms, in percent)	36.9	24.2	24.3	20.3	16.1	-30.6	17.3	9.3	32.5	52.7	-5.3	12.7	5.0	3.5	4.7
Growth of imports of G&S (U.S. dollar terms, in percent)	19.5	28.5	55.3	19.6	15.6	-29.5	14.6	14.2	14.6	1.5	-0.4	2.5	4.4	3.9	5.2
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	30.6	35.0	41.1	39.1	36.4	35.3	36.2	24.9	22.5	25.4
Government revenues (excluding grants, in percent of GDP)	36.5	40.4	34.9			30.4	31.3	32.7	32.8	34.3	35.4		46.3	32.6	38.0
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/	...	...	...			2.5	3.0	2.0	1.8	1.5	1.3		0.5	0.5	0.6
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			33.9	37.8	45.8	44.2	42.3	42.5		46.9	51.8	47.2
Memorandum items:															
Nominal GDP (billions of U.S. dollars)	3.2	3.9	5.3			4.0	4.3	4.8	5.6	6.6	7.2		12.1	23.5	
Nominal dollar GDP growth	36.8	24.5	33.8			-23.3	7.4	10.8	16.5	17.9	9.5	**6.5**	7.8	6.8	8.2
PV of PPG external debt (in billions of U.S. dollars)			1.3			1.4	1.6	1.7	1.7	1.8	1.8		2.0	1.8	
(PVt-PVt-1)/GDPt-1 (in percent)						2.7	4.4	2.3	1.3	0.6	0.4	1.9	0.1	-0.2	0.1

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 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	37	37	36	32	27	25	17	8
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	37	34	31	28	27	28	84	96
A2. Primary balance is unchanged from 2009	37	38	38	36	36	39	95	145
A3. Permanently lower GDP growth 1/	37	37	37	33	30	29	30	53
A4. Alternative Scenario :[Costumize, enter title]	39	42	39	36	34	32	63	64
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	37	38	38	35	31	30	27	28
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	37	39	41	36	31	29	20	11
B3. Combination of B1-B2 using one half standard deviation shocks	37	37	37	33	28	26	19	12
B4. One-time 30 percent real depreciation in 2010	37	51	48	42	36	34	24	17
B5. 10 percent of GDP increase in other debt-creating flows in 2010	37	46	44	39	34	31	22	12
PV of Debt-to-Revenue Ratio 2/								
Baseline	119	117	108	95	79	70	36	24
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	119	108	95	85	79	79	179	292
A2. Primary balance is unchanged from 2009	119	119	115	108	103	109	204	440
A3. Permanently lower GDP growth 1/	119	118	111	100	86	80	64	160
A4. Alternative Scenario :[Costumize, enter title]	126	160	150	136	126	123	242	247
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	119	119	116	106	91	85	59	85
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	119	124	124	110	91	81	43	34
B3. Combination of B1-B2 using one half standard deviation shocks	119	117	111	99	82	74	40	36
B4. One-time 30 percent real depreciation in 2010	119	161	146	127	105	94	52	50
B5. 10 percent of GDP increase in other debt-creating flows in 2010	119	145	133	118	98	88	46	38
Debt Service-to-Revenue Ratio 2/								
Baseline	10	5	5	7	7	6	2	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	8	5	5	7	8	8	8	21
A2. Primary balance is unchanged from 2009	8	5	6	8	8	8	9	30
A3. Permanently lower GDP growth 1/	8	6	6	8	8	8	4	11
A4. Alternative Scenario :[Costumize, enter title]	8	6	6	9	11	10	10	14
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	8	6	6	8	9	8	4	7
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	8	5	6	8	9	8	3	4
B3. Combination of B1-B2 using one half standard deviation shocks	8	5	6	8	8	7	3	4
B4. One-time 30 percent real depreciation in 2010	8	7	8	11	12	11	4	7
B5. 10 percent of GDP increase in other debt-creating flows in 2010	8	5	7	9	9	8	3	5

Sources: Country authorities; and Fund 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 4.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	35	36	35	31	27	25	**16**	8
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	35	32	26	25	33	40	**58**	8
A2. New public sector loans on less favorable terms in 2009-2029 2	35	36	35	32	28	26	**17**	9
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	35	37	36	32	28	26	**17**	8
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	35	41	46	41	36	33	**21**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	35	38	38	34	29	27	**18**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	35	40	41	37	32	30	**19**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	35	38	38	34	30	27	**18**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	35	51	49	44	38	35	**23**	10
PV of debt-to-exports ratio								
Baseline	64	62	60	47	31	34	**21**	18
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	64	54	44	37	38	54	**74**	19
A2. New public sector loans on less favorable terms in 2009-2029 2	64	62	60	48	32	35	**22**	22
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	64	62	60	47	31	33	**21**	18
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	64	79	93	73	49	53	**32**	23
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	64	62	60	47	31	33	**21**	18
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	64	68	71	55	37	40	**24**	19
B5. Combination of B1-B4 using one-half standard deviation shocks	64	70	68	53	36	38	**23**	19
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	64	62	60	47	31	33	**21**	18
PV of debt-to-revenue ratio								
Baseline	114	117	107	95	79	70	**35**	24
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	114	103	79	75	96	112	**125**	25
A2. New public sector loans on less favorable terms in 2009-2029 2	114	116	107	96	81	73	**37**	28
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	114	118	111	98	81	73	**36**	24
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	114	132	140	125	104	93	**45**	25
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	114	121	116	103	85	76	**38**	25
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	114	128	126	112	93	83	**41**	24
B5. Combination of B1-B4 using one-half standard deviation shocks	114	123	117	104	86	77	**38**	23
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	114	164	151	134	111	99	**49**	32

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

	2009	2010	2011	2012	2013	2014	2019	2029
Debt service-to-exports ratio								
Baseline	4	3	3	4	3	3	**2**	2
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	4	3	3	3	3	3	**3**	4
A2. New public sector loans on less favorable terms in 2009-2029 2	4	3	3	3	2	2	**2**	1
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	4	3	3	4	3	3	**2**	2
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	4	3	4	5	4	4	**3**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	4	3	3	4	3	3	**2**	2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	4	3	3	4	3	4	**2**	3
B5. Combination of B1-B4 using one-half standard deviation shocks	4	3	3	4	3	4	**2**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	4	3	3	4	3	3	**2**	2
Debt service-to-revenue ratio								
Baseline	8	6	6	8	8	7	**3**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	8	5	5	6	7	6	**5**	5
A2. New public sector loans on less favorable terms in 2009-2029 2	8	6	6	6	5	5	**3**	2
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	8	6	6	8	8	8	**3**	3
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	8	6	6	9	9	8	**4**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	8	6	6	9	9	8	**3**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	8	6	6	8	8	8	**3**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	8	6	6	8	8	7	**3**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	8	8	8	11	11	10	**4**	4
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	28	28	28	28	28	28	**28**	28

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.