



IMF Working Paper

What Level of Public Debt Could India Target?

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Asia and Pacific Department

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Abstract

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This paper discusses possible medium-term public debt targets for India, based on evidence from the economic literature on prudent levels of public debt and the feasibility for the country to meet a particular target over the next 5-6 years. While recognizing the challenges in determining an appropriate debt target, cross-country analysis and simulations suggest that a debt ratio in the range of 60-65 percent of GDP by 2015/16 might be suitable for India. Such a debt ceiling, while still above the average debt level for emerging markets, is within the range of debt ratios that would provide room for countercyclical fiscal policy and contingent liabilities. It would also send a strong signal of the government's commitment to fiscal consolidation by making a clear break with the past.

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I. INTRODUCTION

After a decade of large fiscal deficits, India adopted a rules-based fiscal framework in 2003: the Fiscal Responsibility and Budget Management Act (FRBMA), with the objective of to ensure intergenerational equity in fiscal management and the fiscal sustainability necessary for long-term macroeconomic stability. As noted by Simone and Topalova (2009), the implementation of the FRBMA coincided with a decline in India's central government fiscal deficit by about 1.8 percent of GDP between its introduction and 2007/08. However, the fiscal consolidation has since been fully reversed, owing to a combination of spending measures introduced prior to the onset of the global crisis, a soaring subsidy bill, fiscal stimulus packages in response to the crisis, and a cyclical downturn in tax revenue. The Thirteenth Finance Commission is currently reviewing the fiscal rules framework, with the aim to formulate a successor framework: FRBMA II.¹ As argued in Simone and Topalova (2009), a successor fiscal framework that is centered around a medium-term debt target, and complemented with expenditure rules, stands a better chance of achieving fiscal discipline. Lowering public debt to prudent levels within a clearly-specified timeframe is also one of the goals of the fiscal exit strategies as outlined in the G20 principles (IMF 2009b).

This paper discusses possible debt level targets based on evidence from the economic literature on prudent levels of public debt and the feasibility for India to meet a particular public debt target over the next 5-6 years. Relative to other emerging market countries, India's public debt is substantially higher and the gap has widened over time. India's public debt at 78 percent of GDP in 2008/09 stands out against the average for emerging markets at 45 percent of GDP. While recognizing the challenges in determining an appropriate debt target, cross-country analysis and simulations suggest that a ratio in the range of 60-65 percent of GDP might be suitable for India. Simulations for India's debt suggest that public debt could follow an array of potential paths depending on the reforms that the government chooses to implement. At the end of the simulation period (2015/16), public debt could decline only marginally to 74 percent of GDP under a no-reform scenario, while a combination of a subsidy reform, revenue reforms and partial privatization of public enterprises could bring its level to below 60 percent of GDP. A 60-65 percent of GDP debt ceiling, while still above the average debt level for emerging markets, is within the range of debt ratios that would provide room for considerable countercyclical fiscal policy and contingent liabilities. It would also send a strong signal of the government's commitment to fiscal consolidation by making a clear break with the past.

The paper is organized as follows: section II reviews the theoretical and empirical literature on debt level targets; Section III examines relevant factors in determining a possible debt level target for India; and Section IV concludes.

¹ The Finance Commission is a constitutional body established under article 280 of the Indian Constitution every five years with the primary purpose of determining the sharing of centrally collected tax proceeds between the central and state governments and the distribution of grants-in-aid of revenues across states. The terms of reference of the Finance Commissions can be expanded by order of parliament.

II. WHAT IS AN APPROPRIATE PUBLIC DEBT CEILING TARGET?

A. Theoretical Considerations

The optimal level of public debt that a country should target could be easily calculated once the relevant country's parameters are included in a rich enough theoretical model. Unfortunately, the theoretical literature on optimal debt policy provides little practical guidance. With different assumptions about household behavior, market completeness and time horizons, various models can deliver vastly different predictions about the optimal debt policy (or do not deliver any predictions at all):

- The *Barro-Ricardian* view of the world remains silent as to the optimal level of debt since households, assumed to be rational and with infinite time horizon, are indifferent between taxes and government debt since they only care about the present value of taxes (Barro, 1974).
- Under the *Keynesian view*, where consumers are liquidity constrained and resources can be underemployed in equilibrium, an increase in debt can be welfare-enhancing, by increasing both current as well as future consumption.
- On the other hand, *neoclassical models*, which concentrate on the effect of debt on interest rates and national savings highlight the positive effects of debt reduction on investment (Bernheim, 1989).
- More recent richer models, which assume a broader role of government debt (such as a saving instrument for households) and incomplete markets, have been calibrated with U.S. data. However, the estimated optimum quantity of public debt varies from 2/3 of GDP (Aiyagari et al. 1998) to 5 percent of GDP (Desbonnet and Kankanamge 2007) depending on assumptions.

B. Empirical Evidence

Despite the lack of clear-cut theoretical predictions regarding the optimal level of public debt, a high level of public debt has been a source of concern for both emerging markets and advanced economies. A number of countries have adopted debt ceiling targets in their fiscal responsibility laws, while regional integration agreements have imposed debt ceilings as part of their convergence criteria. Debt reduction is typically motivated by a heightened awareness of future spending needs, a desire for inter-generational equity, a desire to reduce crowding out, and more generally by a desire to provide more future room for maneuver for fiscal policy in buffering the economy against major shocks or absorbing contingent liabilities without threatening debt sustainability. Examining the empirical evidence on how debt levels shape the ability of countries to achieve these goals can provide some guidance as to the desired level of debt.

- **Ensure sustainability of fiscal policy.** There is no simple rule for determining whether a government's debt is sustainable or not. A commonly used approach is to view fiscal policy as sustainable if it delivers a ratio of public debt to GDP that is stable (see for example Blanchard et al. (1990)). A related methodology assesses whether a government is overborrowing in the sense that its debt stock exceeds the present discounted value of its expected future primary surpluses. Assuming that a country's past track record provides a good guide for the future, IMF (2003) estimates that the average benchmark debt-to-GDP ratio (i.e. the debt-to-GDP ratio which is equal to the present discounted value of primary surpluses) among emerging markets is only 25 percent of GDP and that the average emerging market economy has a ratio of public debt to GDP that is 2.5 times larger than its fiscal policy track record would suggest is warranted. The methodologies outlined above do not take into account the uncertainties faced by governments. A more stringent approach to assessing debt-sustainability is to observe the distribution of revenue outcomes, as well as the degree of spending flexibility that a government has, and to estimate the maximum debt level that the country can service in the face of a long period of low revenues. IMF (2003) shows that countries with more variable tax revenue, less ability to adjust expenditure and a larger difference between the real interest rate and real growth rates are able to sustain lower public debt ratios.
- **Enable countercyclical fiscal policy.** A number of studies have documented that the power of fiscal policy to affect aggregate demand is non-linear and depends on initial conditions. At low levels of debt, fiscal policy has the traditional Keynesian effects, however the effects reverse at high levels of fiscal stress, when contractionary fiscal measures can be expansionary through their effect on interest rates, risk premia and confidence. Exactly at which level of debt, the Keynesian effects are reversed is hard to pinpoint from the existing literature. In a panel of 19 OECD countries, Perotti (1999) finds robust evidence that fiscal stress, which he calculates as a function of public debt and government's future expenditure needs, is an important determinant of the effect of fiscal policy. However the exact level of debt at which the reversal occurs is not mentioned.² Similarly IMF (2008) finds that the effectiveness of fiscal policy as a countercyclical tool is smaller in countries with high public debt - defined as above 75 percent of GDP in industrial countries and 25 percent of GDP for emerging markets. Most recently, IMF (2009) confirms this finding by documenting that the effectiveness of fiscal policy in stimulating aggregate demand during recessions is inversely related to the level of public debt: the point estimate of the impact of government consumption on the strength of economic recovery becomes negative for debt levels that exceed about 60 percent of GDP (though the confidence interval around the estimated threshold level of debt is very wide).

² In contrast, Giavazzi et al. (2000) find that high or rapidly growing public debt does not appear to be a good predictor of non-linear effects of fiscal policy.

- **Reduce vulnerability to crises.** Liquidity crises and sovereign debt defaults have occurred at very different public debt levels.³ Numerous studies have attempted to examine at what level *external* debt has a negative effect on growth by raising significantly the probability of a crisis. The estimates vary: in a sample of developing countries, Pattillo et al. (2002) find that at about 35-40 percent of GDP the impact of external debt on growth becomes negative – the main channel for this affect appears to be through lowering the efficiency of investment. Cohen (1997) finds a relatively higher turning point: with debt levels at about 50 percent of GDP, the probability of debt rescheduling rises substantially. The estimated threshold is similar in Manasse, Roubini, and Schimmelpfennig (2003) who estimate a threshold of 50 percent of GDP. While these studies give an idea of the average levels of debt at which vulnerability rises, the prudent levels of public debt are also a function of the country’s institutions.⁴ For example, the threshold levels of external debt ratios are set as a function of the country’s institution in the IMF Low-Income Country Debt Sustainability Analysis. The duration, currency composition, and the type of investor base in a country’s debt also have a bearing on the prudent levels of external debt.⁵ High levels of domestic indebtedness can explain why some countries appear to be extremely vulnerable to external crises even at very low levels of external debt ratios (see Reinhart et al. 2003, and Reinhart and Rogoff, 2008).
- **Optimize growth by reducing the risk of crowding out.** A target debt level/ceiling can also be set with a view to optimize growth under the assumption that Ricardian equivalence does not hold and at higher levels of debt, public investment crowds out the more efficient private investment.⁶ High levels of debt could also lead to higher expected tax burden in the future, which would lower investor expectations of after-tax returns, thereby lowering investment and growth (Krugman, 1988 and Agenor and Montiel (1996)). For example, Smyth et al. (1995) estimate that the debt ratio that maximizes US growth is about 40 percent of GDP. Mati (2005) estimates that debt levels of above 38 percent of GDP will be detrimental to growth in the case of Indonesia.
- **Create headroom for large contingent liabilities.** The recent experience has shown that the recognition of contingent or implicit liabilities—particularly those associated with the recapitalization of financial sectors—can add significantly to public debt,

³ IMF (2003) documents that in 55 percent of the sovereign defaults recoded, public debt was below 60 percent of GDP in the year below the default.

⁴ See Kraay and Nehru (2006).

⁵ Reinhart C., K. Rogoff, and M. Savastano (2003) suggest that emerging markets have lower debt tolerance. Further, they make the point that a low share of long-term, domestic currency debt contribute to debt intolerance.

⁶ IMF (2009c) estimates that a 1 percent of GDP increase in debt raises government bond yields by 5-10 bps.

and threaten its sustainability. The cost to the government of systemic banking crises over the past three decades averaged 16 percent of GDP.⁷

The empirical literature thus provides a range of potential threshold levels of public debt depending on countries' circumstances and the priority of policy objectives. The estimates range from as low as 15 percent of external debt to GDP ratios for countries with history of default (See Reinhart et al. 2003) to as high as 60-70 percent.

However, even these estimates should be taken with a grain of salt. Historical data on public (unlike external) debt are limited, covering mostly industrial countries, and relatively recent time periods. Research on public domestic debt has been pushed to the sidelines due to the perceived notion that emerging markets resort less to domestic than external debt for financing. Only recently has a comprehensive dataset on public debt been compiled (IMF 2003 and Reinhart and Rogoff, 2008) which could potentially enable researchers to reexamine how public debt shapes the ability of countries to achieve their objectives.

C. Country Experience

Given the difficulty in pinning down the desired debt-to-GDP ratio, it is perhaps not surprising that the debt ceilings adopted by countries in their fiscal responsibility frameworks or under regional economic agreements are quite similar. A number of countries have followed the 60 percent debt-to-GDP ceiling under the Stability and Growth Pact of the EU (e.g. Indonesia, Pakistan), while a number of countries have clustered around the more stringent 40 percent of GDP debt ceiling (e.g. UK, Ecuador, Panama etc.). The debt-ceilings are not referred to as "optimal" levels of debt, but rather as levels of indebtedness that are prudent and sustainable under the assumed growth trajectory of a country.

⁷ See Laeven, L. and F. Valencia (2008), However, the average cost of a banking crisis may be revised upwards in light of recent banking sector bailouts owing to the global economic crisis.

Table 1. Examples of Debt Ceilings

Regional Integration Agreements	Debt / GDP
Economic and Monetary Community of Central Africa (CEMAC)	70
West African Economic and Monetary Union (WAEMU)	70
Economic and Monetary Union of the EU (EMU)	60
Andean Community	50
Central American Countries	50
Mercosur	40
Individual Countries	
Estonia	60
Indonesia	60
Pakistan	60
Poland	60
United Kingdom	40
Denmark	40
Slovenia	40
Ecuador	40
Panama	40
Kenya	40
Namibia	30

Source: IMF staff.

III. WHAT IS AN APPROPRIATE DEBT TARGET/CEILING FOR INDIA?

We pursue several approaches to try to determine the appropriate ceiling for India's public debt-to-GDP level as its medium-term fiscal anchor: (i) we derive the maximum debt level consistent with intertemporal solvency under various assumptions for the primary balance, real growth and interest rate; (ii) we estimate the thresholds of debt intolerance; and (iii) we compare India's debt levels with those of other emerging markets. The level of public savings and indebtedness also has an impact on private investment: indeed, looking at historical data there is evidence of crowding out in India (see Annex). However, since this approach does not suggest a particular debt level, we have not pursued a more thorough analysis.

A. Sustainability of Public Debt

Following the methodology outlined in IMF (2003), we can derive a 'benchmark' level of public debt based on assumptions about the future fiscal stance and macroeconomic variables. From the government budget constraint, one can derive a simple relationship between the current debt ratio and the expected future primary surpluses. The benchmark level of debt should be less than or equal to the present discounted value of the expected

future primary surpluses: $PDV = p / (r-g)$ where p is the primary balance (assumed to be equal to the historical average), r is the real interest rate and g is the real growth rate.

This analysis is typically performed under the assumption that the historical behavior of fiscal policy is a good predictor of future policy and the sustainable level of public debt is derived from the historical average primary surplus. In the case of India, this methodology is not easily adaptable. Over the past 20 years, India has been running primary deficits, thus, a historical scenario would imply a negative net present value of public debt. Even harder to pin down is the relevant discount factor ($r-g$). In the past, the real growth rate has remained consistently above the real effective interest rate on public debt implying a negative interest-growth differential. The negative interest-growth differential is not unique to India. As summarized in the table below, IMF Public Debt Sustainability Analyses reveal that a number of emerging markets have gone through relatively long periods in which the real growth rate has outpaced on average the real effective interest rate (columns (1)-(3)). However, in order to discount future primary surpluses, one needs to focus on the future marginal cost of debt. Following IMF (2003) and Abiad and Ostry (2005), column (4) calculates the real interest cost for each country as the sum of the US long-term real rate, measured by the long-term government bond yield minus CPI inflation and the sovereign spread from JP Morgan's Emerging Market Bond Index Global. For most of the countries, this methodology delivers a substantially higher discount factor ($r-g$), averaging about 1 percent across the selected sample of emerging markets.

In thinking about the relevant discount factor for India, one also has to keep in mind that historically a number of factors have kept the cost of government borrowing low such as a captive investor base for government securities and capital controls. As India becomes further financially integrated and investment requirements on domestic financial institutions are eased, the negative interest growth differential is unlikely to persist. A negative ($r-g$) is also not consistent with a long-run equilibrium.

Table 2. Selected Emerging Countries: Average Growth-Interest Differential, 1998-2008

Country	real effective		r-g	marginal real	
	real growth	interest rate		interest rate 1/	r-g
	(1)	(2)	(3)	(4)	(5)
China	9.9	0.2	-9.7	3.1	-6.8
India	7.2	3.4	-3.8		
Indonesia	5.3	-5.3	-10.6	5.4	0.1
Korea	5.3	3.7	-1.6		
Malaysia	4.4	1.6	-2.8	4.1	-0.3
The Philippines	4.4	1.4	-3	6.1	1.7
Thailand	4.5	4.9	0.4		
Brazil 2/	3.8	8.0	4.2	8.3	5.0
Chile	3.8	-1.5	-5.3	3.5	-0.3
Colombia	3.3	2.5	-0.8	6.4	3.1
Mexico 3/	3.0	0.8	-2.2	5.1	2.1
Panama	5.6	5.9	0.3	5.6	0.0
Peru 2/	6.5	1.0	-5.5	6.1	1.0
Russia 2/	7.3	-10.6	-17.9	12.1	5.3
South Africa 4/	5.2	2.4	-2.8	4.8	0.9
Turkey	4.0	15.1	11.1	6.7	2.7
Average			-3.1		1.1

Source: IMF Article IV Staff reports, Bloomberg and WEO 2009.

1/ Real marginal interest rate is calculated as the sum of the real interest rate on 10-year US Government bond and the EMBI Global sovereign spread. EMBI data was not available for India, Korea and Thailand.

2/ The growth rate, real effective interest rate and r-g in columns (1)-(3) refer to the last 5 years.

3/ The growth rate, real effective interest rate and r-g in columns (1)-(3) refer to the last 6 years.

4/ The growth rate, real effective interest rate and r-g in columns (1)-(3) refer to the last 3 years.

Instead of making ad-hoc assumptions regarding the long-term growth rate and interest rate of India, as well as its primary balance, the table below simply calculates the benchmark level of public debt under various plausible scenarios.

For example, if India's primary balance were to stabilize at about 0.6 percent of GDP, while its long-run growth rate is about one percentage point less than the real interest rate on its debt (similar to the average across the selected sample of emerging markets), it could maintain a debt-to-GDP ratio of 60 percent. The higher the long-run primary surpluses and real growth and the lower the real interest rate, the higher is the sustainable debt-to-GDP ratio.

Table 3. Benchmark Public Debt-to-GDP Ratio: Sensitivity to Primary Surplus and Interest-Growth Rate Differential

Primary Surplus (in percent of GDP)	Discount Factor (r-g)							
	0.5	1	1.5	2	2.5	3	3.5	4
0.2	40	20	13	10	8	7	6	5
0.4	80	40	27	20	16	13	11	10
0.6	120	60	40	30	24	20	17	15
0.8	160	80	53	40	32	27	23	20
1	200	100	67	50	40	33	29	25

B. Thresholds of Debt Intolerance

The concept of debt intolerance was first introduced by Reinhart et al. (2003) to capture the fact that many emerging markets have difficulty accessing capital markets even at low levels of external debt, while other highly indebted countries have substantially easier access to credit. They posit that the nonmonotonic relationship between debt intolerance and the level of debt is related to the countries' default and inflation history – thus each country has its own critical thresholds for debt depending on its past. Following DiBella (2008) and Everaert (2008) who adapt Reinhart et al. (2003) to assess public debt thresholds, we simulate at which level of public debt India becomes less 'debt intolerant.'

First, we estimate the relation between debt intolerance (proxied by the Institutional Investor rating (IIR)⁸) of a country and the public debt-to-GDP ratio. Based on their average rating over the 1991-2008 sample period, countries are grouped into 3 clubs, where the cutoffs for the clubs are based on the mean IIR over the entire sample and the standard deviation of the IIR:

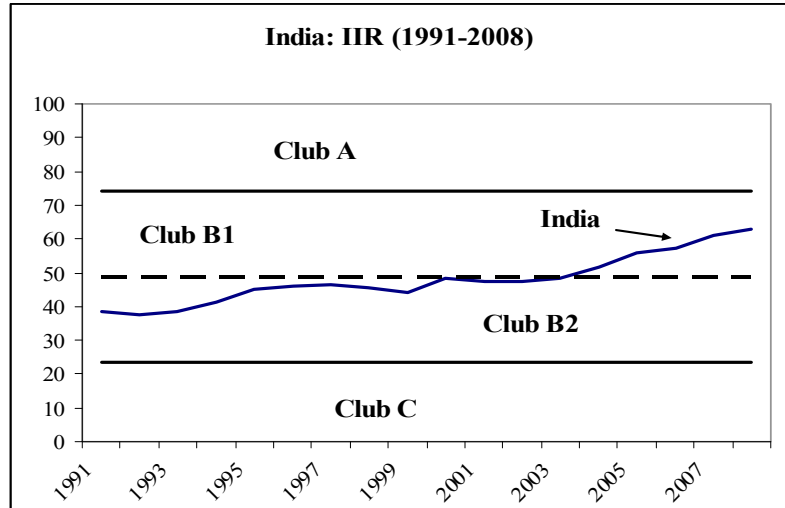
Club A	Club B		Club C
	Club BI	Club BII	
IIR > Mean + 1 StdDev	Mean + 1 StdDev > IIR > Mean	Mean > IIR > Mean - 1 StdDev	IIR < Mean - 1 StdDev

Countries in Club A are the most credit-worthy and enjoy easy access to credit markets (i.e. the least debt intolerant), while club C countries are the most debt-intolerant with virtually no access to credit. We first include all countries for which data is available in the sample (142 countries). We also conduct the exercise with the sample of the 54 countries included in the original Reinhart et al. (2003) paper, which includes countries with higher IIR and a history

⁸ The country ratings is published biannually by the Institutional Investor magazine, which gives each country a rating from 0 to 100 for its attractiveness as investment destination (with 100 given to those countries with the least chance for default).

of access to international capital markets. India's average rating for 1991-2008 is 48 – right around the cutoff between the two subgroups of Club B. However, India's rating over time has improved considerably and stood at 62.7 as of March 2008.

The relationship between the countries' ratings and the level of public debt is estimated, controlling for the country's history of high inflation. This relationship is allowed to vary by the type of club the country belongs to. We also include an indicator for India to catch any additional country-risk premium (beyond the level of debt) that may be included in the IIR.



$$\text{IIR} = \text{constant} + \text{ClubA} * \text{debt/GDP} + \text{ClubB} * \text{debt/GDP} + \text{ClubC} * \text{debt/GDP} + \text{high inflation}$$

Table 4a. Country Ratings, Public Debt Ratios and Clubs

	(1)	(2)	(3)	(4)
Debt * Club A	0.4736*** [0.0739]	0.4735*** [0.0741]	0.2875*** [0.0761]	0.2873*** [0.0770]
Debt * Club B	-0.1284*** [0.0444]	-0.1305*** [0.0447]	-0.1858** [0.0782]	-0.1867** [0.0809]
Debt * Club C	-0.2254*** [0.0444]	-0.2256*** [0.0446]	-0.4883*** [0.0814]	-0.4886*** [0.0825]
Inflation	-32.7535*** [8.1696]	-32.6056*** [8.2059]	-29.5788*** [7.8627]	-29.5314*** [7.9896]
India		7.6240*** [1.6508]		0.9856 [3.0868]
Constant	50.6262*** [3.2099]	50.6333*** [3.2211]	61.6729*** [4.8710]	61.6891*** [4.9331]
r2	0.68	0.68	0.78	0.78
N	142	142	54	54

Source: Institutional Investor, WEO and Fund staff estimates.
Robust standard errors in parenthesis.

Table 4b. Predicted Debt Thresholds for India

Debt / GDP	Specification 2		Specification 3	
	Predicted IIR	Predicted Club	Predicted IIR	Predicted Club
0	58.3	BI	61.7	BI
5	57.6	BI	60.7	BI
10	57.0	BI	59.8	BI
15	56.3	BI	58.9	BI
20	55.6	BI	58.0	BI
25	55.0	BI	57.0	BI
30	54.3	BI	56.1	BI
35	53.7	BI	55.2	BI
40	53.0	BI	54.2	BI
45	52.4	BI	53.3	BII
50	51.7	BI	52.4	BII
55	51.1	BI	51.5	BII
60	50.4	BI	50.5	BII
65	49.8	BI	49.6	BII
70	49.1	BI	48.7	BII
75	48.5	BII	47.7	BII
80	47.8	BII	46.8	BII
85	47.2	BII	45.9	BII
90	46.5	BII	45.0	BII
95	45.9	BII	44.0	BII
100	45.2	BII	43.1	BII

Similarly to Reinhart et al. (2003), DiBella (2008) and Everaert (2008), we find that higher debt is associated with lower sovereign rating for countries in clubs B and C.

Using the estimated coefficients from the regression (specifications in columns (2) and (3)), we predict the IIR for India for varying ratios of general government debt. According to the empirical regularities in the full sample of countries, if India were to reduce its debt-ratio to about 70-75 percent, it will be able to graduate to a less debt-intolerant club of countries (see table above). Within the smaller sample which is biased towards countries with higher IIRs, the debt threshold for India is substantially lower at 40-45 percent.

The sensitivity of the findings to the sample of countries is perhaps not surprising as the cutoffs for the different clubs depend on the countries included. In the full sample, the cutoff between Club BI and BII is an IIR of 48 compared to the IIR of 54 in the Reinhart et al. (2003) sample. In addition, the positive and significant indicator for India in column (2) suggests that its rating has been substantially and consistently higher than that of other economies with similar levels of public debt when the full set of countries are considered. This “India premium” as well as the lower boundary between Club BI and BII account for the much higher threshold of debt when the coefficients from the column (2) specification are used. Within the smaller sample of countries, where there is no “India premium” and the criteria to enter a more credit-worthy club are substantially more stringent, India would have to reduce its level of indebtedness quite drastically in order to graduate to the next club. Given that this is likely the set of countries with which India will compete in the global market for funds in the future, one can argue that this more stringent threshold is the more relevant one for India.

While the debt thresholds estimated with this methodology provide a useful starting point, the exercise above highlights several important caveats. First, as already discussed, the cutoffs for the various clubs are highly dependent on the sample of countries included in the analysis. Second, the IIR predicted by this model are substantially lower than the actual ratings that India has received in recent years given its rather elevated level of public debt. Reinhart et al. (2003) suggest that persistent and sizable positive gaps between the actual and the predicted IIR may be an indication that the country is in the process of graduating from club B. Given that the sensitivity of the country’s perceived credit-worthiness to its debt level is a function of the club in which it belongs, it is unclear whether the conclusions drawn from the estimation above remain valid for countries about to switch clubs.

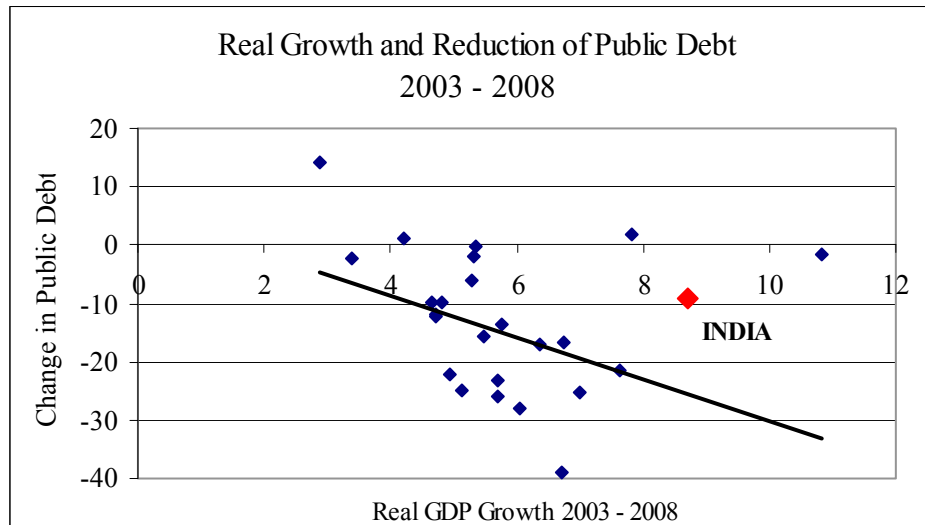
C. Public Debt Ratios of Emerging Markets

India’s choice of debt ceiling should also be informed by the debt ratios of similar emerging market economies. Public debt in emerging markets has declined substantially over the past 5 years from an average of 63 percent of GDP in 2003 to 47 percent of GDP in 2008 (the numbers do not reflect the full impact of the fiscal measures taken during the ongoing crisis on public debt). Against this background, India, whose public debt is estimated at 78 percent of GDP in 2008, stands out not only as one of the most indebted countries in the sample, but also as one of the countries which has made the least progress in reducing its debt, despite its impressive growth performance.

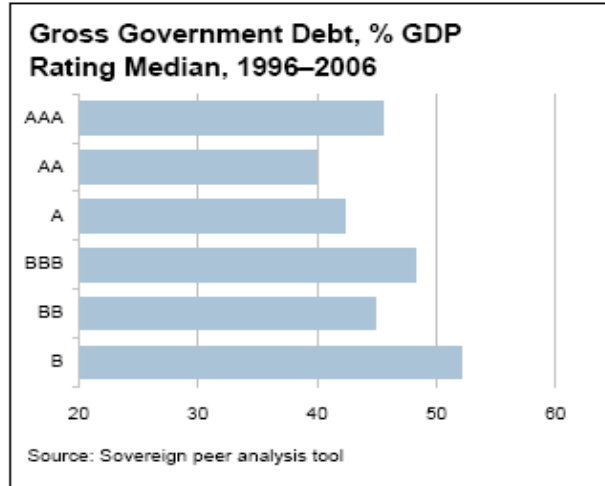
Table 5. General Government Debt Ratios Among Sample of Emerging Countries

	General Government Gross Debt in percent of GDP						Average Growth	Change in
	2003	2004	2005	2006	2007	2008	Rate	Debt Ratio
Argentina	139.3	126.8	86.8	76.5	67.9	57.7	8.5	-81.6
Brazil	76.5	69.2	64.5	63.7	67.7	64.5	4.7	-12.0
Chile	13.4	11.0	7.7	5.3	4.1	3.4	4.8	-10.0
China,P.R.: Mainland	19.2	18.5	17.8	16.5	20.2	17.7	10.8	-1.5
Colombia	46.2	42.4	38.8	35.8	32.5	30.4	5.5	-15.8
Czech Republic	30.1	30.4	29.8	29.6	28.9	29.8	5.3	-0.3
Ecuador	47.4	40.5	35.0	28.7	26.1	22.3	5.1	-25.1
Hungary	58.0	59.4	61.8	65.6	65.9	72.2	2.9	14.2
India	87.4	86.5	84.0	80.8	78.3	78.2	8.7	-9.2
Indonesia	58.3	55.2	45.8	39.0	35.1	32.3	5.7	-25.9
Israel	99.9	98.2	94.2	85.6	79.5	77.8	4.9	-22.1
Korea	30.8	31.6	33.9	34.1	33.0	31.9	4.2	1.1
Lebanon	168.6	167.1	175.7	179.9	167.8	162.5	5.3	-6.1
Malaysia	44.4	42.9	41.9	41.0	29.9	30.6	5.8	-13.8
Mexico	45.6	41.4	39.8	38.3	38.2	43.3	3.4	-2.2
Peru	47.1	44.3	37.7	33.2	30.9	25.6	7.6	-21.5
Philippines	71.4	69.7	62.8	55.4	47.8	48.2	5.7	-23.2
Poland	48.4	46.7	47.5	47.8	44.9	46.4	5.3	-2.0
Russia	31.6	23.1	14.2	9.1	7.4	6.5	7.0	-25.1
Singapore	104.3	100.7	99.4	94.0	86.0	87.5	6.7	-16.8
South Africa	37.3	36.4	35.2	33.0	28.5	27.3	4.7	-10.0
Thailand	49.5	48.2	46.2	40.2	37.0	37.4	4.7	-12.1
Turkey	67.4	59.2	52.3	46.1	39.4	39.5	6.0	-27.9
Ukraine	29.4	25.3	18.5	15.5	12.8	12.2	6.4	-17.1
Uruguay	112.9	105.5	111.3	99.9	86.0	74.0	6.7	-38.9
Vietnam	42.7	45.4	44.5	44.1	46.3	44.4	7.8	1.7
Average	61.8	58.7	54.9	51.5	47.8	46.3	5.9	-15.5

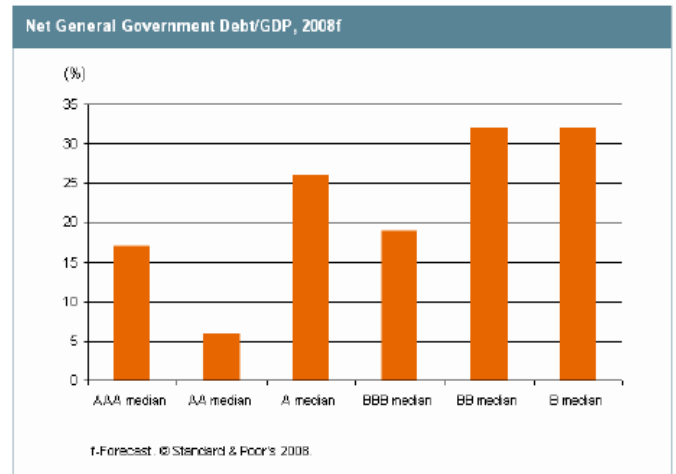
Source: WEO April 2009, and IMF staff estimates.



A very similar approach to thinking about a target level of debt, which summarizes the ideas behind debt thresholds discussed in section B as well as the cross country comparison, is to examine sovereign credit ratings criteria.



Source: Fitch, Sovereign Rating Methodology.



Source: Standard & Poors. Sovereign Ratings: A Primer.

The level of public debt is an important determinant of sovereign ratings in the quantitative models of all three major credit ratings agencies (Fitch, Moody's and S&P). Simple cutoffs for the debt ratios across the different ratings do not exist, as a number of other factors are taken into account in assigning a sovereign rating. However, lower levels of indebtedness are typically associated with higher scores. In comparison to other countries sharing India's BBB- rating (the lowest rating for "investment grade" debt), India has a substantially higher debt-to-GDP ratio. A reduction in debt may be needed not only to attract a higher rating (e.g. the median country with a Fitch sovereign rating of A has debt-to-GDP ratio of only 45 percent), but also to remain in its current grade given the wide gap from its peers. Indeed, S&P put India's credit rating under negative watch in early 2009. Coincidentally, the 45 percent debt threshold for an A-rating is equivalent to the debt-threshold identified under the Reinhart et al. (2003) methodology in Section B.

IV. WHAT IS A FEASIBLE DEBT TARGET/CEILING FOR INDIA? DEBT SIMULATION RESULTS

The particular level of the medium-term debt target/ceiling should be based on India's "prudent" level of debt in the long run as well as on the government's ability to meet the target in a scenario with realistic macroeconomic projections and plausible reforms. Setting targets that seem unrealistically ambitious or not sufficiently ambitious may undermine the credibility of the government's commitment to fiscal prudence.

In this section, we briefly review India's public debt from a historical perspective, which would provide some benchmarks against which the "ambitiousness" of a debt target/ceiling can be judged. We then project the path of India's general government debt from 2009/10 to 2015/16 under several scenarios:

- a baseline scenario under the assumption of "no change" in current policy;
- subsidy reform;

- sustained revenue improvements;
- some privatization of government stakes in public companies; and
- a combined scenario of subsidy reform, revenue improvements and privatization.

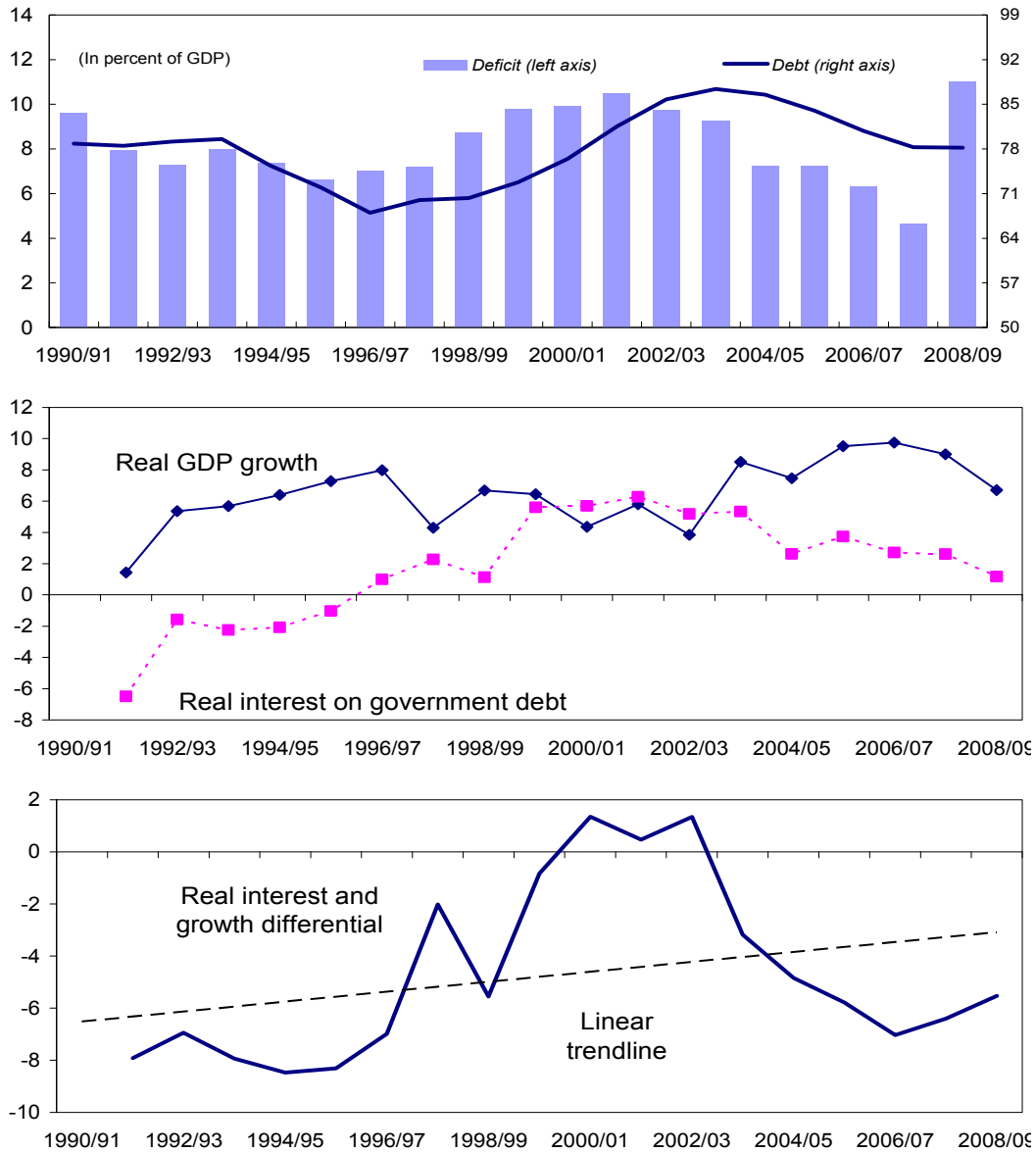
We argue that a credible signal of commitment to fiscal discipline would require a debt target/ceiling of at most 60-65 percent of GDP. If India were to gradually return to its potential GDP growth rate of 8 percent, this goal could be achieved by 2015/16 years through a combination of expenditure and revenue reforms and a front-loaded divestment of government assets.

A. Historical Perspective

Between 1991 and 2009, public debt has been in a range between 68 to 87 percent of GDP, with an average of 78 percent of GDP. The lowest point of 68 percent of GDP was reached in 1996/97 and the peak occurred in 2004. Since 1991, India has gone through two periods of substantial fiscal consolidation: (1) in the first half of the 1990s; and (2) after the introduction of the FRBMA in 2003 until 2007/08. In the first consolidation, the debt-to-GDP ratio was reduced from 79 percent in 1994/95 to 68 percent in 1997/98; in the second consolidation, the debt-to-GDP ratio declined from a peak of 87 percent in 2004/05 to 81 percent in 2007/08. However, fiscal consolidation was reversed in both of these episodes: in 1996/97 due to the economic slowdown and Fifth Pay Commission and presently due to a soaring subsidy bill, the Sixth Pay commission, the agricultural debt waiver and crisis-related fiscal measures.

During the 1991-2008 period, a favorable interest growth differential facilitated the fiscal consolidation episodes in the early 1990s and mid-2000s. However, a negative interest growth differential is unlikely to persist in the long run as financial liberalization and economic development narrow the gap between the interest rate and growth. Indeed, the trend line of the interest and growth differential is upward sloping over this period, suggesting that sustaining India's high historical debt levels may become more difficult in a longer-term perspective.

India: Government deficits, growth, and real interest rates in historical perspective



Source: CEIC and IMF staff calculations.

A debt target which aims to send a strong signal of the government's commitment to fiscal rectitude would have to make a clear break from the past. One way to think of a "break" from the past is by looking at the distribution of India's public debt. Based on the moments of this distribution, a "break" from the past could be defined as a debt ceiling that is at least lower than the historical average minus one standard deviation. With a mean of 78 percent of GDP and a standard deviation of 6 percent of GDP over the past 20 years, this would imply a debt ceiling of at most 72 percent of GDP. A more stringent criteria would require the debt ceiling to be lower than the lowest level India's public debt has reached in recent times, i.e. at most 68 percent of GDP.

B. Debt Simulations

Simulations of fiscal consolidation provide an idea of potential deficit and debt level reduction depending on the breadth and speed of fiscal reform. To better gauge feasible debt targets in India, we simulate five different scenarios over 2009/10 to 2015/16 under varying assumptions on revenue and expenditure reform, as well as privatization.

These are stylized partial equilibrium exercises which abstract from the second-round effect of the potential reforms on macroeconomic performance. For example, the introduction of the GST is expected to raise GDP growth by 1.4 percentage points (Kelkar 2009), while the slow pace of debt reduction in a scenario with no reforms may trigger a ratings downgrade and raise the cost of financing for the government. In order to isolate just the first round impact of fiscal measures on the path of debt, the real growth rate and interest rates projections are kept the same in all scenarios. Namely, real GDP growth is assumed to gradually return to its potential rate of 8 percent by 2013/14, while the GDP deflator stabilizes at 4 percent per annum. The real effective interest rate on government debt remains close to its historical average at 4 percent. Note that this macro framework already ensures very favorable automatic debt dynamics as the interest growth differential contributes about an average of 3-percentage points of GDP reduction in debt per annum. The rest of the assumptions under the scenarios are summarized below.

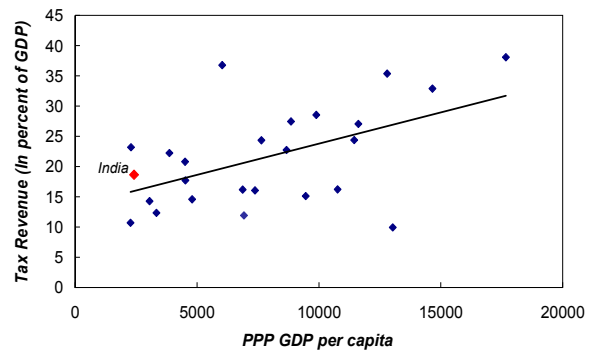
Simulation assumptions:

1. **Baseline scenario.** Under the baseline scenario, moderate revenue gains in the medium term are achieved owing to continued administrative improvements, but the gains are also driven by a recovery to pre-crisis levels. On the expenditure side, the subsidy system is assumed to be unreformed, although there is some expenditure consolidation as recent one-off expenditure measures (e.g. agricultural debt relief and Fifth Pay commission) dissipate and fiscal stimulus measures are gradually withdrawn. The government is expected to continue issuing subsidy-related bonds covering two-thirds of the under recoveries of oil marketing companies.
2. **Subsidy reform.** This scenario assumes that the fuel subsidy system is reformed in 2009/10 to reflect market prices for fuel (excluding kerosene), diminishing the need to issue subsidy bonds. Better targeting in the delivery of food, and fertilizer subsidies, are also expected to yield some savings. The revenue gains are as in the baseline scenario.
3. **Revenue reform.** After several years of impressive direct tax performance due to enhanced tax administration and buoyant economic growth, India compares favorably to its peers in terms of revenue collections. Nevertheless, there is scope for further revenue growth. Flanagan (2006) suggests revenue reforms in the areas of direct and indirect taxation (including the introduction of the GST) amounting to 4 percent of GDP. In this scenario, revenues would increase by an additional 1 percentage point of GDP relative to the baseline scenario over the simulation period. The subsidy system is unreformed as in the baseline scenario.

India: Potential Revenue Reforms

Revenue measures	Potential Yield (In percent of GDP)
Goods and Services Taxation	1.3
Broaden service tax base	1.0
Eliminate exemptions	0.3
Compliance improvement	large
Personal income taxation	2.3
Tax agriculture	0.3
Tighten treatment of charities	0.2
Mortgage interest deduction	0.2
Interest exemptions	0.3
Raise income threshold	1.4
Corporate income taxation	0.5
Eliminate exemptions	0.5
Total revenue measures	4.0

Source: Flanagan (2006).

India: Tax Revenue in International Perspective


4. **Privatization.** Selling part of the government's stake in public companies could yield significant revenues to help bring down debt levels. We estimate that bringing the government stakes in publicly listed public sector enterprises to 51 percent could net some Rs 3,900 billion, or 5.8 percent of 2010/11 GDP. We assume that the government will be able to realize half of these gains.

5. **Subsidy and revenue reform combined with privatization.** This combination scenario includes the subsidy reform in scenario 2, the revenue reform in scenario 3 and the privatization in scenario 4.

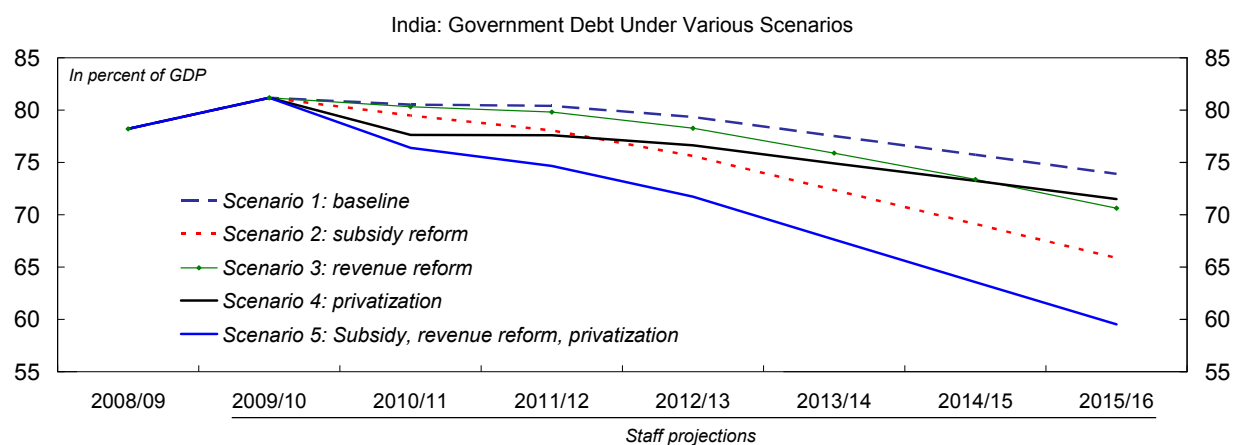
Simulation results. Table 6 presents the path of India's public debt under the five scenarios.

- The **baseline scenario** yields only moderate deficit and debt consolidation, with the overall deficit improving to 6.5 percent of GDP at the end of the simulation period in 2015/16, and the debt level declining by only 7.3 percentage points from 81.2 to 74 percent of GDP, roughly the level of public sector debt in 2000/01. Despite its declining path under the baseline scenario, public debt remains elevated and the public debt dynamic is vulnerable to various shocks as suggested by the IMF Debt Sustainability Analysis (DSA). For instance, the DSA simulations suggest that shocks to the primary balance or growth could result in an unsustainable debt path.
- **Subsidy reform** is a powerful tool for consolidation as the overall general government deficit improves by 6.4 percentage points of GDP to 4.4 percent and the debt declines 15.3 percentage points to 66 percent of GDP between 2009/10 and 2015/16.
- Further **revenue reform** will also yield significant fiscal consolidation as the public debt level is brought down to 70.6 percent of GDP, a decline of 10.6 percentage points, while the general government deficit is at 5.3 percent of GDP by 2015/16.
- **Privatization** proceeds can also be a significant contributor to the reduction in debt levels. Just the divestment of Rs 2,000 billion of assets alone can help bring down the

debt-to-GDP ratio to 71.5 percent of GDP. However, the speed of the adjustment of public debt is the slowest after the baseline scenario.

- Finally, the **combined scenario** (subsidy and revenue reform, combined with privatization) is the most powerful tool for fiscal consolidation. Under this scenario, the overall debt declines by close to 22 percentage points to 59.5 percent of GDP, while the general government deficit narrows to 3 percent of GDP. The 7.8 percentage points reduction of the deficit is driven by the decline in expenditure in the order of 4 percentage points of GDP. The increase in total government revenue by 3.8 percentage points of GDP accounts for the rest of the fiscal consolidation. Under the combined scenario, the public debt ratio declines steadily after 2009/10, and public debt dynamics are resilient to a number of shocks (see DSA). However, debt dynamics could result in unsustainable paths if there are further shocks to the primary balance (i.e. there is half a standard deviation shock to the primary balance).

Simulation results suggest over the next 5-6 years, the outcomes for India's public debt could take a large range of values depending on the reforms that the Indian government chooses to implement. A subsidy reform alone has the potential to yield significant dividends in terms of fiscal consolidation. Enhanced revenue performance could also bring in a much needed reduction in the fiscal deficit and debt, while disinvestment proceeds could be used to lower the level of public indebtedness. However, none of these reforms is enough on its own.



To make a clear break with the past, a combination of subsidy and revenue reforms as well as privatization receipts will likely be needed. Under the combined scenario, India could reduce its public debt ratio to as low as 60 percent of GDP.

V. CONCLUSION

Drawing on the theoretical and cross-country empirical literature on debt level targets, as well as India-specific simulations, this paper discusses prudent medium-term debt level targets for India. While the different approaches to determine the appropriate level of public debt target / ceiling do not yield conclusive results on their own, taken together, they suggest that a reasonable and feasible public debt ceiling anchor for India's medium-term fiscal framework could be on order of 60-65 percent of GDP.

- The empirical literature, other countries' debt ceilings, as well as the debt thresholds estimated by adapting the Reinhart et al. (2003) methodology suggest a wide range of possible debt targets. However, there are virtually no approaches that we are aware of that yield a debt ratio higher than 70-75 percent of GDP.

Public Debt Targets / Ceilings: Examples from Literature Review and Regional Agreement Criteria

		<p><i>40-45 percent of GDP</i> Debt threshold for India based RRS (2003) on restricted sample</p> <p><i>60 percent of GDP</i> Debt level at which the impact of fiscal policy reverses sign WEO (2009)</p>		
	<p><i>25 percent of GDP</i> Sustainable Debt Ratios in EM WEO (2003)</p>	<p><i>50 percent of GDP</i> Level at which fiscal policy becomes unresponsive to debt ratios WEO (2003)</p>	<p><i>70-75 percent of GDP</i> Debt threshold for India based RRS (2003) on full sample</p>	
	<p><i>40 percent of GDP</i> Debt Level that maximizes US growth Smyth et al. (1997)</p>	<p><i>60 percent of GDP</i> Debt Ceiling of the EU</p>	<p><i>66 percent of GDP</i> Optimal Level of Debt for US economy Aiyagari et al. (1998)</p>	
	<p><i>40 percent of GDP</i> Debt Ceiling of Mercosur</p>	<p><i>50 percent of GDP</i> Debt Ceiling of Andean Community, Central American Countries</p>	<p><i>70 percent of GDP</i> Debt Ceiling of CEMAC, WAEMU</p>	
0-20	21 - 40	41 - 60	61 - 80	81-100
Public Debt in Percent of GDP				

- A 60-65 percent of GDP debt ceiling, while still above the average debt level for emerging markets, is within the range of debt ratios that would allow substantial countercyclical fiscal response and provide headroom for large contingent liabilities as identified in the literature. It is also a level of debt that could be sustainable given reasonable assumptions about the future interest-growth differential and primary balances.
- A debt target of 60-65 percent, lower than India's lowest debt ratio over the past 20 years, would send a strong signal of the government's commitment to fiscal rectitude by making a clear break with the past.
- Achieving this debt ceiling by 2015/16 would require substantial efforts – subsidy reform would be crucial in containing current spending, continued efforts to improve tax administration and widen the tax base are needed to raise revenues, and disinvestment of public assets could lighten the debt burden.

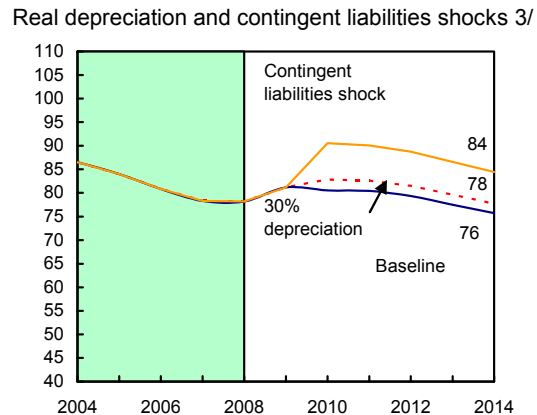
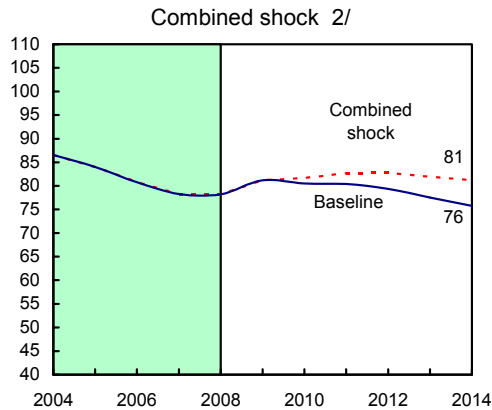
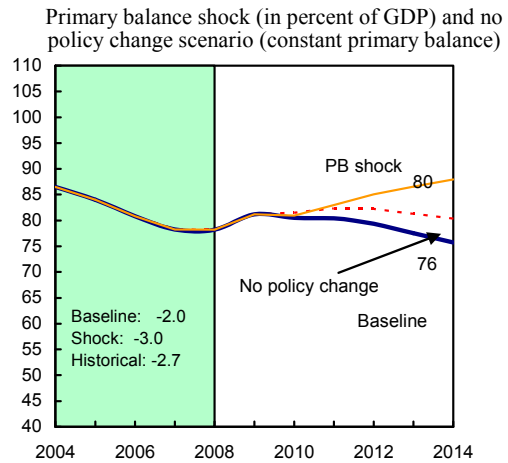
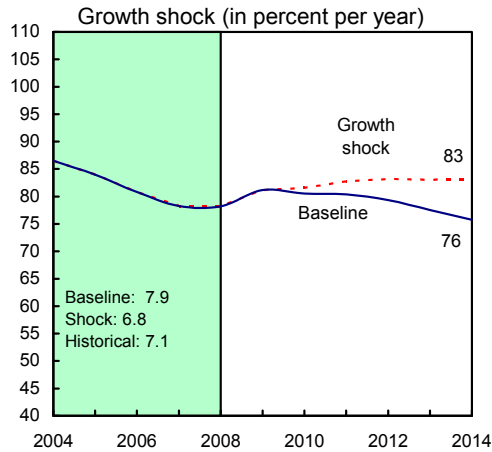
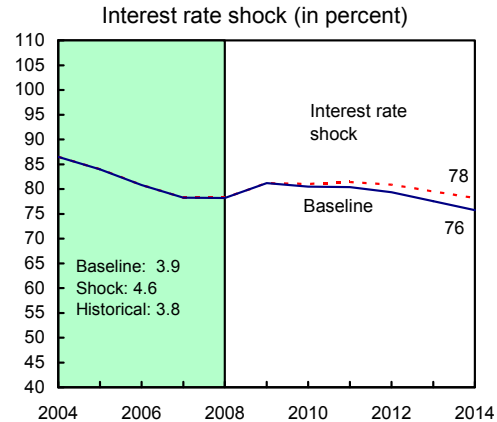
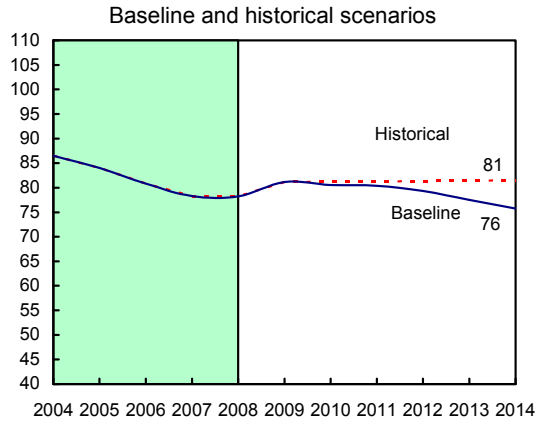
Table 6. Path of India's General Government Debt: Scenarios

Scenario 1. Baseline (In percent of GDP)	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2015/16 - 2009/10
Total revenue and grants	21.0	21.5	22.0	22.6	23.1	23.5	23.9	2.8
Total expenditure and net lending	31.4	30.2	29.4	28.8	28.5	28.8	29.0	-2.4
Subsidy Related Bonds	0.8	1.3	1.4	1.4	1.4	1.4	1.4	0.6
Overall Balance	-11.1	-10.0	-8.8	-7.6	-6.9	-6.8	-6.5	4.6
General Government Debt	81.2	80.5	80.4	79.3	77.5	75.7	73.9	-7.3
Scenario 2. Subsidy Reform	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
Total revenue and grants	21.0	21.5	22.0	22.6	23.1	23.5	23.9	2.8
Total expenditure and net lending	31.4	30.0	29.0	28.2	27.8	27.9	28.0	-3.4
Subsidy Related Bonds	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-0.1
Overall Balance	-10.7	-8.9	-7.4	-6.0	-5.1	-4.7	-4.4	6.4
General Government Debt	81.2	79.5	78.1	75.6	72.4	69.1	65.9	-15.3
Scenario 3. Revenue Reform	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
Total revenue and grants	21.0	21.7	22.4	23.1	23.7	24.3	24.9	3.8
Total expenditure and net lending	31.4	30.2	29.4	28.7	28.5	28.7	28.8	-2.6
Subsidy Related Bonds	0.8	1.3	1.4	1.4	1.4	1.4	1.4	0.6
Overall Balance	-11.1	-9.8	-8.4	-7.1	-6.2	-5.8	-5.3	5.8
General Government Debt	81.2	80.3	79.8	78.3	75.9	73.4	70.6	-10.6
Scenario 4. Privatization	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
Overall Balance	-11.1	-10.0	-8.5	-7.4	-6.7	-6.6	-6.3	4.8
General Government Debt	81.2	77.6	77.6	76.6	74.9	73.2	71.5	-9.7
Scenario 5. Subsidy, Revenue Reform, Privatization	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
Total revenue and grants	21.0	21.7	22.4	23.2	24.1	24.5	24.9	3.8
Total expenditure and net lending	31.4	30.0	28.8	28.0	27.5	27.6	27.6	-3.8
Subsidy Related Bonds	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-0.1
Overall Balance	-10.7	-8.7	-6.7	-5.1	-3.8	-3.4	-3.0	7.8
General Government Debt	81.2	76.4	74.7	71.7	67.6	63.6	59.5	-21.7

Source: Fund staff estimates.

Baseline Scenario: Public Debt Sustainability Bound Tests 1/

(Public debt, in percent of GDP)



Source: Fund staff estimates.

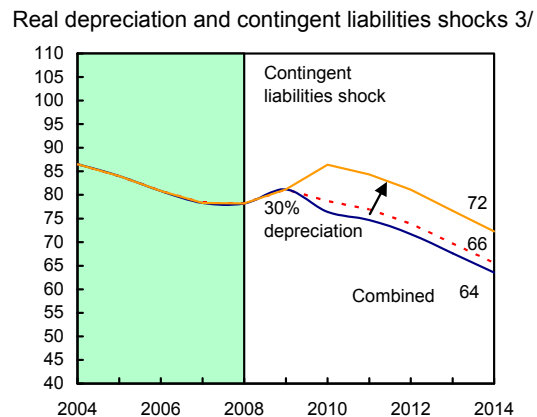
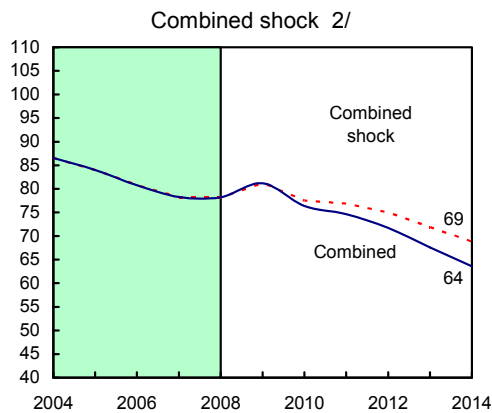
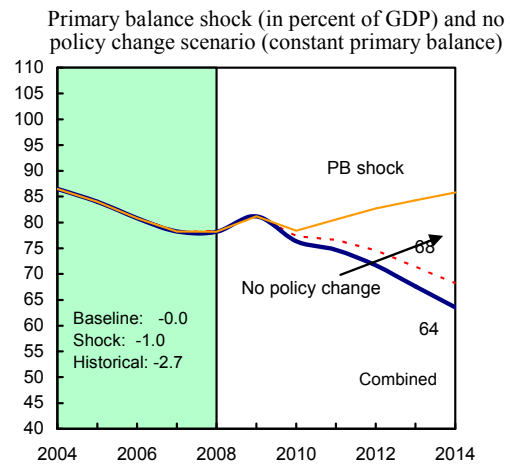
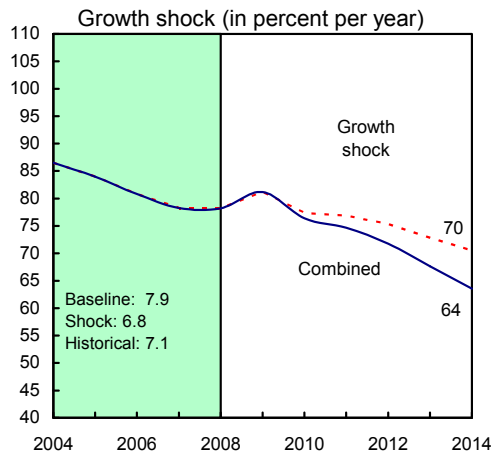
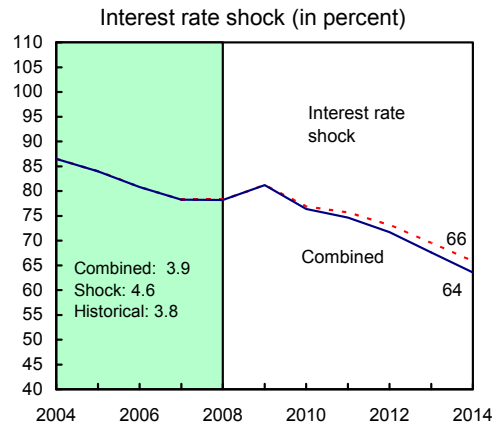
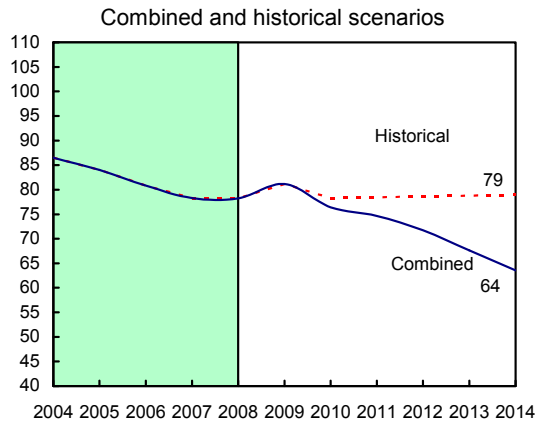
1/ Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.

2/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and primary balance.

3/ One-time real depreciation of 30 percent and 10 percent of GDP shock to contingent liabilities occur in 2009, with real depreciation defined as nominal depreciation (measured by percentage fall in dollar value of local currency) minus domestic inflation (based on GDP deflator).

Combined Scenario: Public Debt Sustainability Bound Tests 1/

(Public debt, in percent of GDP)



Source: Fund staff estimates.

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

2/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and primary balance.

3/ One-time real depreciation of 30 percent and 10 percent of GDP shock to contingent liabilities occur in 2009, with real depreciation defined as nominal depreciation (measured by percentage fall in dollar value of local currency) minus domestic inflation (based on GDP deflator).

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