

Example Public DSA Risk Assessment

Heat Map

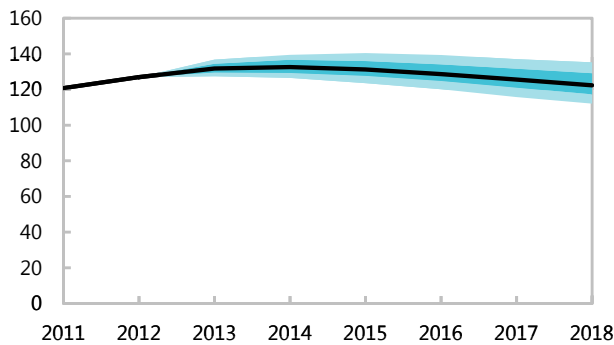
Debt level ^{1/}	Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability shock
Gross financing needs ^{2/}	Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability Shock
Debt profile ^{3/}	Market Perception	External Financing Requirements	Change in the Share of Short-Term Debt	Public Debt Held by Non-Residents	Foreign Currency Debt

Evolution of Predictive Densities of Gross Nominal Public Debt

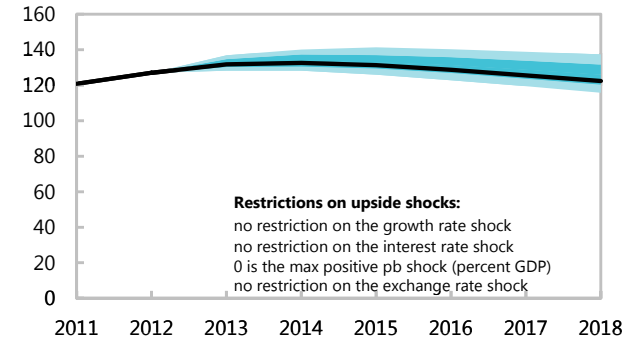
(in percent of GDP)

— Baseline Percentiles: ■ 10th-25th ■ 25th-75th ■ 75th-90th

Symmetric Distribution



Restricted (Asymmetric) Distribution



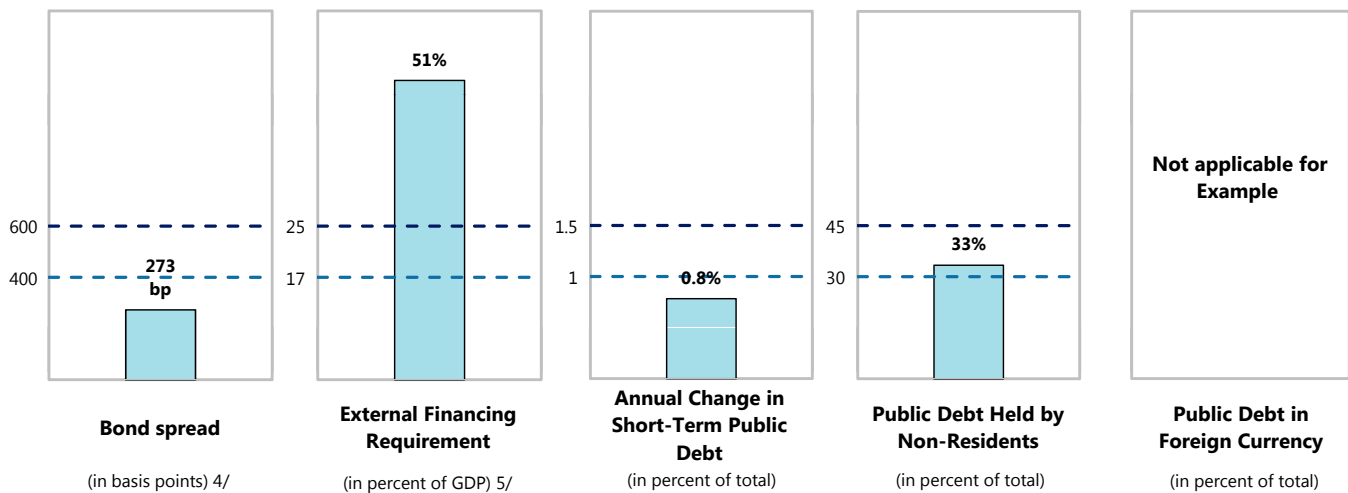
Debt Profile Vulnerabilities

(Indicators vis-à-vis risk assessment benchmarks, in 2012)

■ Example

- - - Lower early warning

- - - Upper early warning



Source: IMF staff.

1/ The cell is highlighted in green if debt burden benchmark of 85% is not exceeded under the specific shock or baseline, yellow if exceeded under specific shock but not baseline,

2/ The cell is highlighted in green if gross financing needs benchmark of 20% is not exceeded under the specific shock or baseline, yellow if exceeded under specific shock but not

3/ The cell is highlighted in green if country value is less than the lower risk-assessment benchmark, red if country value exceeds the upper risk-assessment benchmark, yellow if

4/ Long-term bond spread over German bonds (bp), an average over the last 3 months, 01-Jun-13 through 30-Aug-13.

5/ External financing requirement is defined as the sum of current account deficit, amortization of medium and long-term total external debt, and short-term total external debt at

Example Public DSA - Realism of Baseline Assumptions

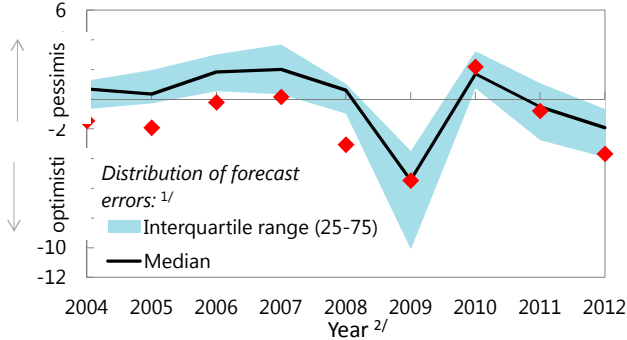
Forecast Track Record, versus

Real GDP Growth

(in percent, actual-projection)

Example median forecast error, 2004-2012: **-1.46**

Has a percentile rank of: **7%**

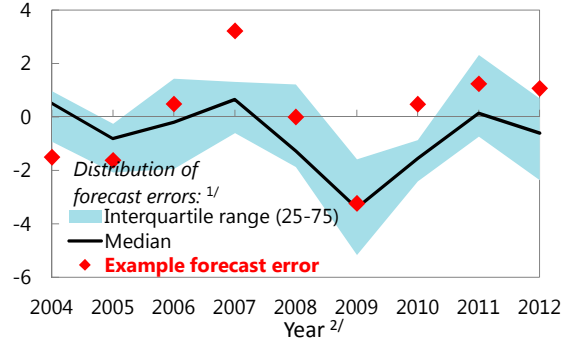


Primary Balance

(in percent of GDP, actual-projection)

Example median forecast error, 2004-2012: **0.49**

Has a percentile rank of: **68%**

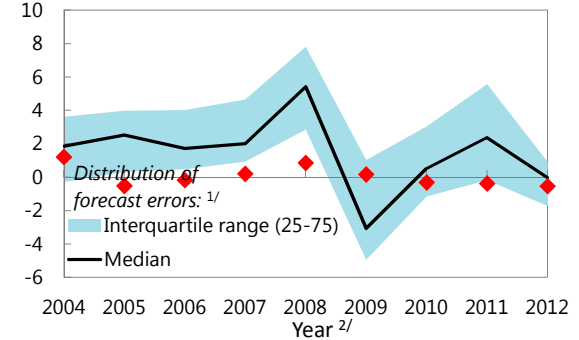


Inflation (Deflator)

(in percent, actual-projection)

Example median forecast error, 2004-2012: **-0.17**

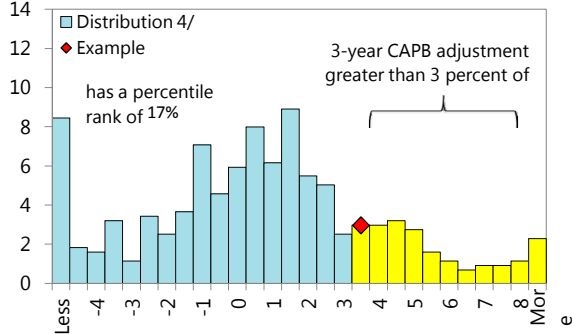
Has a percentile rank of: **13%**



Assessing the Realism of Projected Fiscal Adjustment

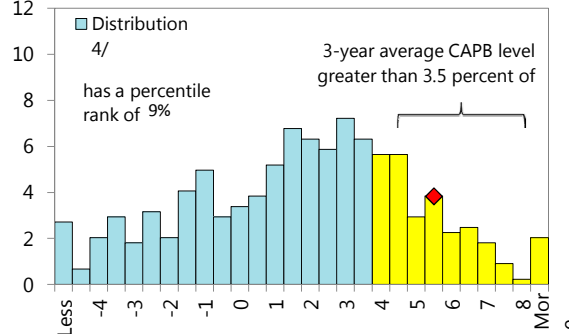
3-Year Adjustment in Cyclically-Adjusted Primary Balance (CAPB)

(Percent of GDP)



3-Year Average Level of Cyclically-Adjusted Primary Balance (CAPB)

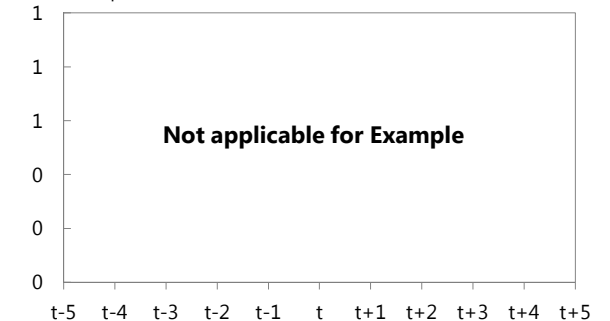
(Percent of GDP)



Boom-Bust Analysis ^{3/}

Real GDP growth

(in percent)
— Example



Source : IMF Staff.

1/ Plotted distribution includes , percentile rank refers to all countries.

2/ Projections made in the spring WEO vintage of the preceding year.

3/ Not applicable for Example, as it meets neither the positive output gap criterion nor the private credit growth criterion.

4/ Data cover annual observations from 1990 to 2011 for advanced and emerging economies with debt greater than 60 percent of GDP. Percent of sample on vertical axis.

Example Public Sector Debt Sustainability Analysis (DSA) - Baseline Scenario

(in percent of GDP unless otherwise indicated)

Debt, Economic and Market Indicators ^{1/}

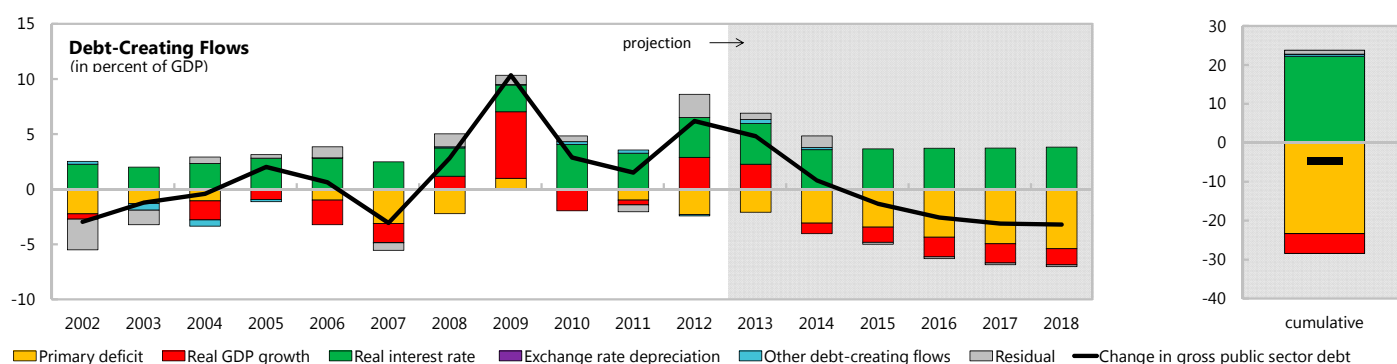
	Actual			Projections					
	2002-2010	2011	2012	2013	2014	2015	2016	2017	2018
Nominal gross public debt	107.8	120.8	127.0	131.8	132.6	131.3	128.7	125.6	122.4
Public gross financing needs	24.5	23.6	26.1	23.1	22.6	23.9	21.8	22.0	20.6
Public debt (in percent of potential GDP)	108.3	118.6	122.7	125.5	127.3	127.1	126.0	124.2	121.9
Real GDP growth (in percent)	0.2	0.4	-2.4	-1.8	0.7	1.1	1.4	1.4	1.2
Inflation (GDP deflator, in percent)	2.2	1.3	1.6	1.4	1.3	1.3	1.4	1.5	1.5
Nominal GDP growth (in percent)	2.4	1.7	-0.8	-0.4	2.1	2.4	2.8	2.9	2.7
Effective interest rate (in percent) ^{4/}	4.7	4.1	4.5	4.3	4.1	4.1	4.3	4.5	4.6

As of August 30, 2013

Sovereign Spreads		
Bond Spread (bp) ^{3/}	276	
5Y CDS (bp)		
	258	
Ratings		
Moody's	Foreign Baa2	Local Baa2
S&Ps	BBB BBB	
Fitch	BBB+ BBB+	

Contribution to Changes in Public Debt

	Actual			Projections						cumulative	debt-stabilizing primary balance ^{9/}
	2002-2010	2011	2012	2013	2014	2015	2016	2017	2018		
Change in gross public sector debt	1.2	1.5	6.2	4.8	0.8	-1.3	-2.6	-3.1	-3.2	-4.6	
Identified debt-creating flows	1.3	2.1	4.1	4.2	-0.3	-1.2	-2.4	-3.0	-3.1	-5.6	
Primary deficit	-1.1	-1.0	-2.3	-2.1	-3.1	-3.4	-4.4	-4.9	-5.4	-23.3	
Primary (noninterest) revenue and grants	44.8	46.0	47.5	47.8	47.9	48.0	48.1	48.2	48.3	288.3	
Primary (noninterest) expenditure	43.7	45.0	45.2	45.7	44.8	44.6	43.7	43.2	42.9	265.0	
Automatic debt dynamics ^{5/}	2.4	2.8	6.5	6.0	2.6	2.3	1.9	2.0	2.4	17.1	
Interest rate/growth differential ^{6/}	2.4	2.8	6.5	6.0	2.6	2.3	1.9	2.0	2.4	17.1	
Of which: real interest rate	2.6	3.3	3.6	3.7	3.6	3.7	3.7	3.7	3.8	22.2	
Of which: real GDP growth	-0.2	-0.4	2.9	2.3	-1.0	-1.4	-1.8	-1.8	-1.5	-5.1	
Exchange rate depreciation ^{7/}	0.0	0.0	0.0	
Other identified debt-creating flows	-0.1	0.3	-0.1	0.4	0.2	0.0	0.0	0.0	0.0	0.5	
Please specify (1) (e.g., privatization receipts) (+ redi-	-0.3	-0.1	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Please specify (2) (e.g., other debt flows) (+ increase	0.2	0.4	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.5	
Residual, including asset changes ^{8/}	0.0	-0.6	2.1	0.6	1.1	-0.2	-0.2	-0.2	-0.2	1.0	



Source: IMF staff.

1/ Public sector is defined as general government.

2/ Based on available data.

3/ Long-term bond spread over German bonds (bp).

4/ Defined as interest payments divided by debt stock (excluding guarantees) at the end of previous year.

5/ Derived as $[r - \pi(1+g) - g + ae(1+r)] / (1+g+\pi+g\pi)$ times previous period debt ratio, with r = effective nominal interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the numerator in footnote 5 as $r - \pi(1+g)$ and the real growth contribution as $-g$.

7/ The exchange rate contribution is derived from the numerator in footnote 5 as $ae(1+r)$.

8/ Includes asset changes and interest revenues (if any). For projections, includes exchange rate changes during the projection period.

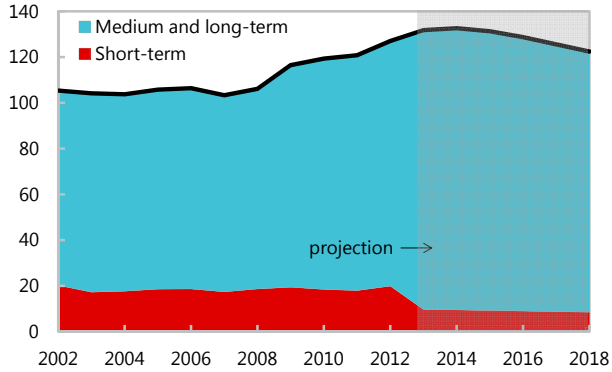
9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

Example Public DSA - Composition of Public Debt and Alternative Scenarios

Composition of Public Debt

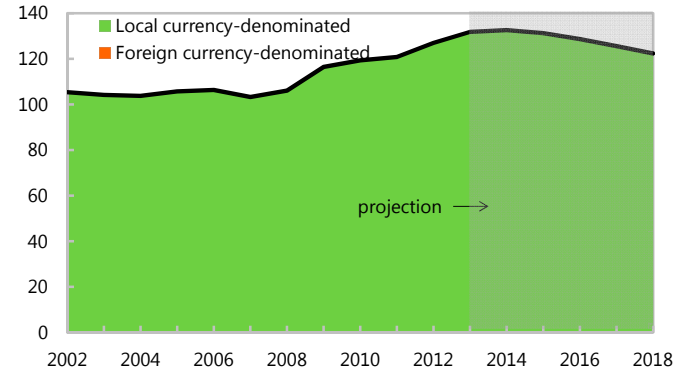
By Maturity

(in percent of GDP)



By Currency

(in percent of GDP)



Alternative Scenarios

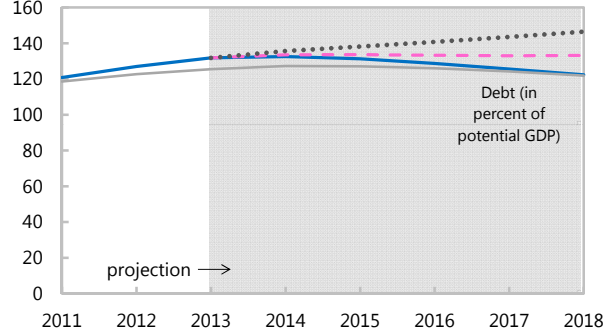
Baseline

..... Historical

----- Constant Primary Balance

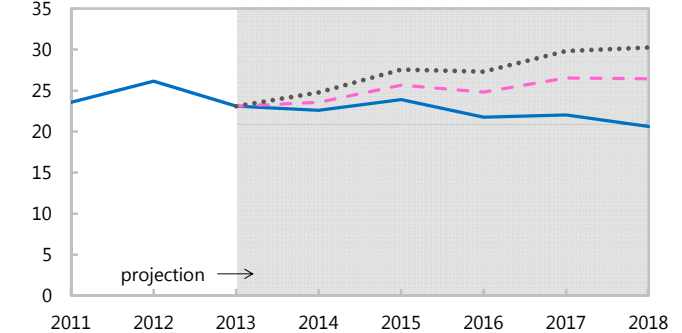
Gross Nominal Public Debt ^{1/}

(in percent of GDP)



Public Gross Financing Needs

(in percent of GDP)



Underlying Assumptions

(in percent)

Baseline Scenario	2013	2014	2015	2016	2017	2018
Real GDP growth	-1.8	0.7	1.1	1.4	1.4	1.2
Inflation	1.4	1.3	1.3	1.4	1.5	1.5
Primary Balance	2.1	3.1	3.4	4.4	4.9	5.4
Effective interest rate	4.3	4.1	4.1	4.3	4.5	4.6
Constant Primary Balance Scenario						
Real GDP growth	-1.8	0.7	1.1	1.4	1.4	1.2
Inflation	1.4	1.3	1.3	1.4	1.5	1.5
Primary Balance	2.1	2.1	2.1	2.1	2.1	2.1
Effective interest rate	4.3	4.1	4.1	4.3	4.4	4.6

Historical Scenario	2013	2014	2015	2016	2017	2018
Real GDP growth	-1.8	0.0	0.0	0.0	0.0	0.0
Inflation	1.4	1.3	1.3	1.4	1.5	1.5
Primary Balance	2.1	1.1	1.1	1.1	1.1	1.1
Effective interest rate	4.3	4.1	4.1	4.2	4.3	4.4

Example Public DSA - Stress Tests

Macro-Fiscal Stress Tests

Baseline

Primary Balance Shock

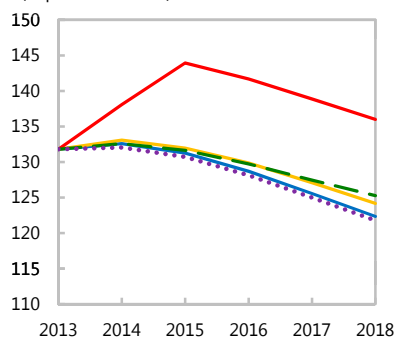
Real Interest Rate Shock

Real GDP Growth Shock

Real Exchange Rate Shock

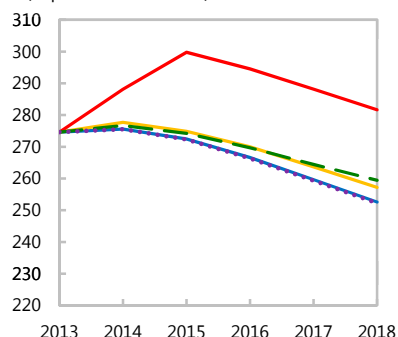
Gross Nominal Public Debt

(in percent of GDP)



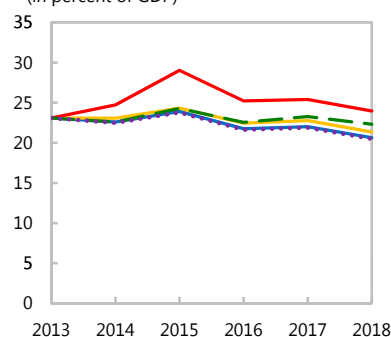
Gross Nominal Public Debt

(in percent of Revenue)



Public Gross Financing Needs

(in percent of GDP)



Additional Stress Tests

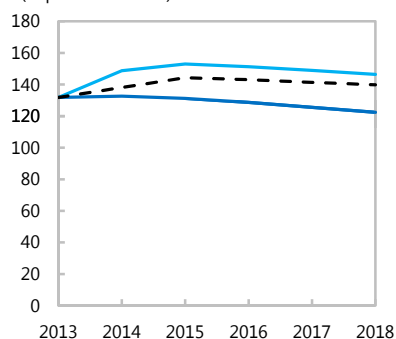
Baseline

Combined Macro-Fiscal Shock

Contingent Liability Shock

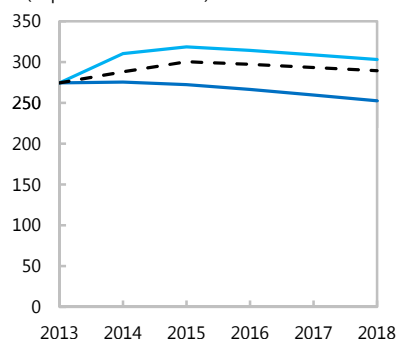
Gross Nominal Public Debt

(in percent of GDP)



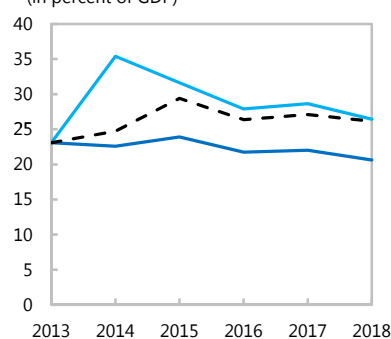
Gross Nominal Public Debt

(in percent of Revenue)



Public Gross Financing Needs

(in percent of GDP)



Underlying Assumptions

(in percent)

	2013	2014	2015	2016	2017	2018
Primary Balance Shock						
Real GDP growth	-1.8	0.7	1.1	1.4	1.4	1.2
Inflation	1.4	1.3	1.3	1.4	1.5	1.5
Primary balance	2.1	2.6	3.3	3.9	4.6	5.2
Effective interest rate	4.3	4.1	4.2	4.4	4.5	4.6
Real Interest Rate Shock						
Real GDP growth	-1.8	0.7	1.1	1.4	1.4	1.2
Inflation	1.4	1.3	1.3	1.4	1.5	1.5
Primary balance	2.1	3.1	3.4	4.4	4.9	5.4
Effective interest rate	4.3	4.1	4.4	4.8	5.1	5.4
Combined Shock						
Real GDP growth	-1.8	-1.6	-1.3	1.4	1.4	1.2
Inflation	1.4	0.7	0.7	1.4	1.5	1.5
Primary balance	2.1	1.7	0.7	3.9	4.6	5.2
Effective interest rate	4.3	4.1	4.4	4.8	5.1	5.4
Real GDP Growth Shock						
Real GDP growth	-1.8	-1.6	-1.3	1.4	1.4	1.2
Inflation	1.4	0.7	0.7	1.4	1.5	1.5
Primary balance	2.1	1.7	0.7	4.4	4.9	5.4
Effective interest rate	4.3	4.1	4.2	4.4	4.5	4.7
Real Exchange Rate Shock						
Real GDP growth	-1.8	0.7	1.1	1.4	1.4	1.2
Inflation	1.4	1.7	1.3	1.4	1.5	1.5
Primary balance	2.1	3.1	3.4	4.4	4.9	5.4
Effective interest rate	4.3	4.1	4.1	4.3	4.5	4.6
Contingent Liability Shock						
Real GDP growth	-1.8	-1.6	-1.3	1.4	1.4	1.2
Inflation	1.4	0.7	0.7	1.4	1.5	1.5
Primary balance	2.1	-8.8	3.4	4.4	4.9	5.4
Effective interest rate	4.3	4.2	4.6	4.7	4.7	4.8