

Public Debt Sustainability Analysis for Market Access Countries (MACs): The IMF's Framework

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Outline

Motivation for 2013 “MAC DSA” reform

Risk - Based Approach

Lower Scrutiny DSA (Basic DSA)

Higher Scrutiny DSA (Additional modules)

Realism of Baseline Assumptions

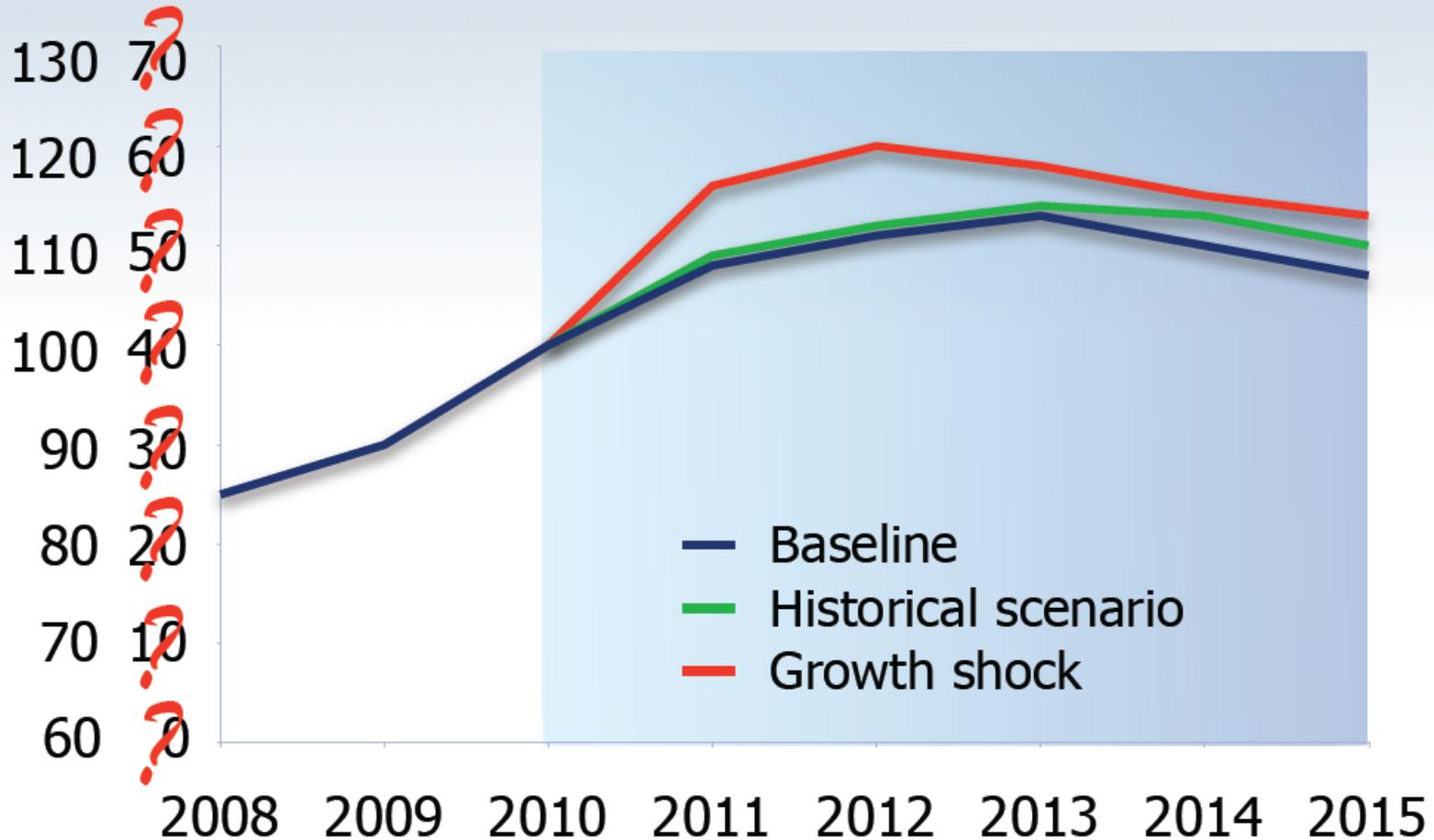
Heat Map: Stress Tests and Debt Profile

Fan Charts

DSA Write Up

Traditionally, the focus was mainly on debt trajectories....

Public debt (in percent of GDP)



Key Features of the MAC DSA

Risk - based approach

- More analysis for countries with potentially greater vulnerabilities

Multifaceted analysis

- Realism of underlying assumptions
- Risks to debt level, gross financing needs, and debt profile, macro-fiscal nexus, and bank-sovereign nexus

Clear and transparent presentation of results

- Standardized charts and tables, fan charts, heat map, write-up

Risk assessment based on benchmarks derived from early warning model

Toolkit is flexible and can be tailored to country-specific circumstances

Risk-Based Approach

Public debt to GDP

> 50/60% for EMs/AEs

Public gross financing needs (GFN) to GDP

> 10/15% for EMs/AEs

Exceptional access to Fund resources



Lower scrutiny



Higher scrutiny

Risk-Based Outputs

Lower scrutiny



Basic DSA



where relevant Customized and contingent liabilities analysis

Higher scrutiny



Basic DSA



Realism of baseline assumptions

Heat map, stress tests, debt profile, fan charts



DSA write-up

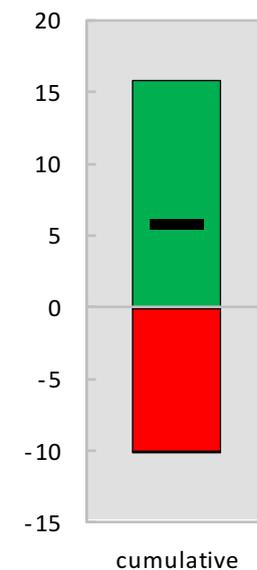
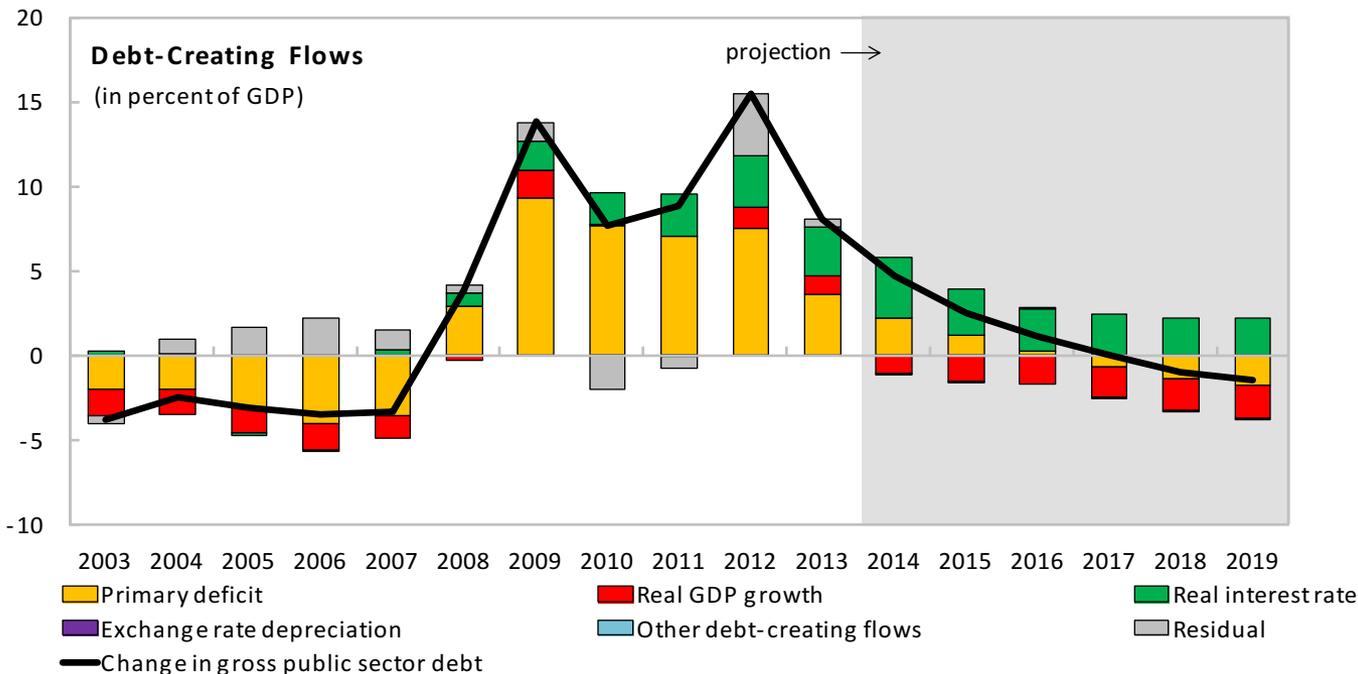
Basic DSA - 1

Debt, Economic and Market Indicators ^{1/}

	Actual			Projections					
	2003-2011 ^{2/}	2012	2013	2014	2015	2016	2017	2018	2019
Nominal gross public debt	48.9	85.9	94.0	98.7	101.2	102.3	102.3	101.3	99.8
Public gross financing needs	11.1	22.0	20.8	20.5	20.0	19.4	18.7	18.0	17.4
Real GDP growth (in percent)	1.6	-1.6	-1.2	1.2	1.6	1.7	1.8	1.9	2.0
Inflation (GDP deflator, in percent)	2.5	0.0	0.6	-0.1	0.8	1.0	1.1	1.4	1.4
Nominal GDP growth (in percent)	4.2	-1.6	-0.6	1.1	2.3	2.7	3.0	3.3	3.4
Effective interest rate (in percent) ^{4/}	4.3	4.3	4.0	3.8	3.7	3.6	3.6	3.6	3.7

As of June 15, 2014

Sovereign Spreads		
EMBIG (bp) 3/	160	
5Y CDS (bp)	90	
Ratings	Foreign	Local
Moody's	Baa2	Baa2
S&Ps	BBB	BBB
Fitch	BBB+	BBB+

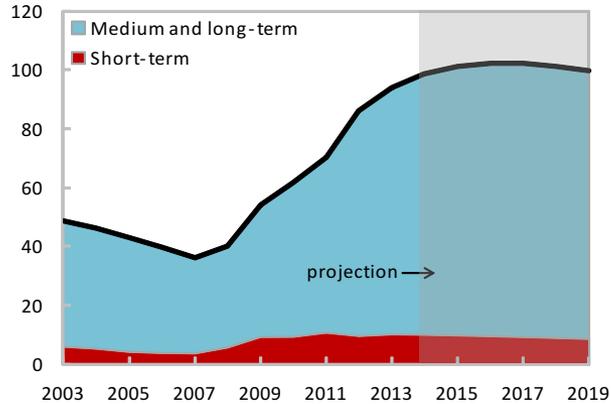


Basic DSA - 2

Composition of Public Debt

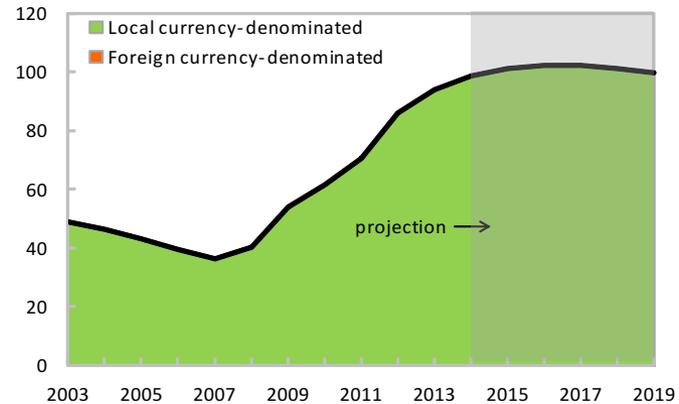
By Maturity

(in percent of GDP)



By Currency

(in percent of GDP)



Alternative Scenarios

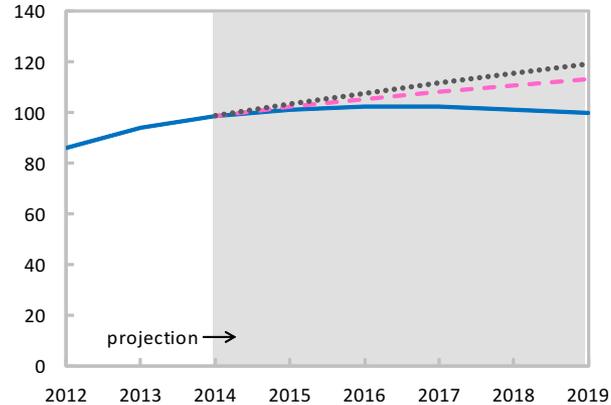
— Baseline

..... Historical

- - - Constant Primary Balance

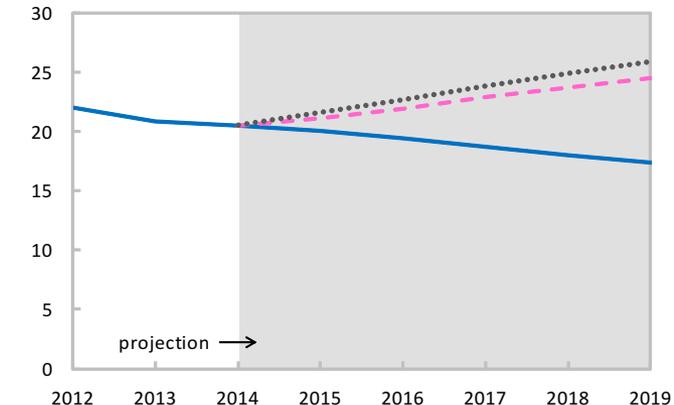
Gross Nominal Public Debt

(in percent of GDP)



Public Gross Financing Needs

(in percent of GDP)



Risk-Based Outputs

Lower scrutiny



Basic DSA



where relevant Customized and contingent liabilities analysis

Higher scrutiny



Basic DSA



Realism of baseline assumptions

Heat map, stress tests, debt profile, fan charts



DSA write-up

Realism of Baseline: Higher Scrutiny Cases

Cross-country tools to assess...

Forecast track record

Boom-bust

Projected fiscal adjustment

**...to help identify
potential optimism**

Realism of Baseline

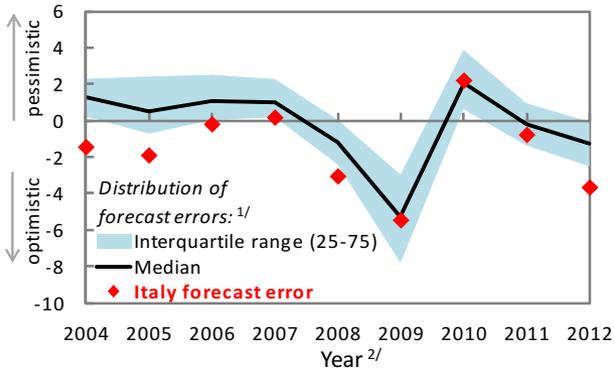
Forecast Track Record, versus surveillance countries

Real GDP Growth

(in percent, actual-projection)

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

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

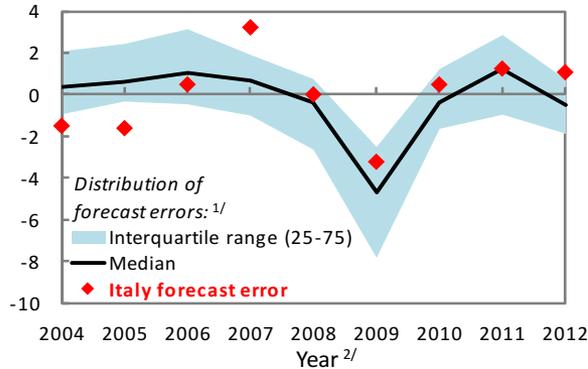


Primary Balance

(in percent of GDP, actual-projection)

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

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

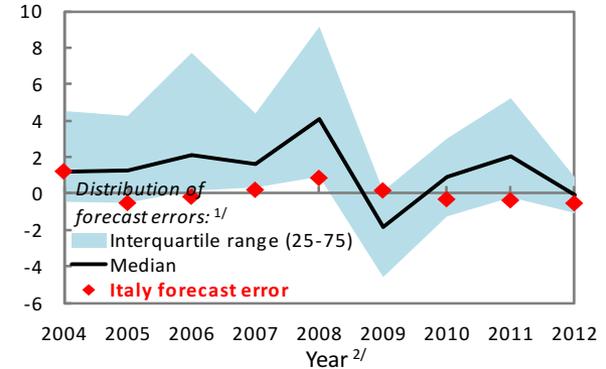


Inflation (Deflator)

(in percent, actual-projection)

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

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

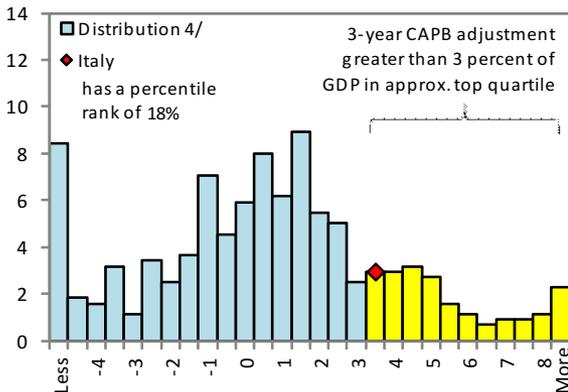


Assessing the Realism of Projected Fiscal Adjustment

3-Year Adjustment in Cyclically-Adjusted

Primary Balance (CAPB) 5/

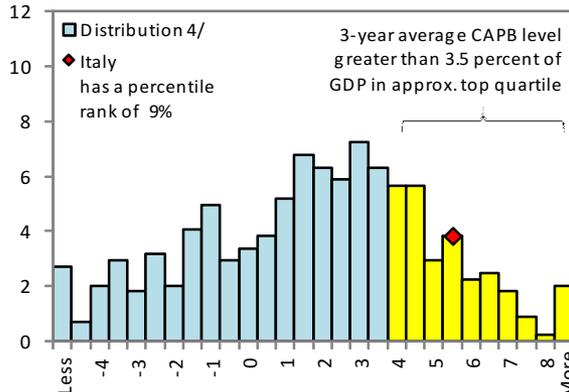
(Percent of GDP)



3-Year Average Level of Cyclically-Adjusted

Primary Balance (CAPB)

(Percent of GDP)

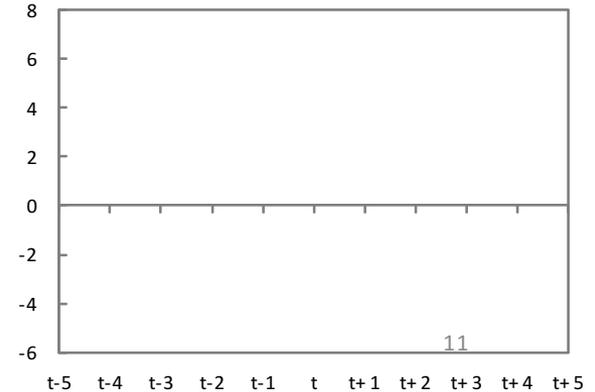


Boom-Bust Analysis^{3/}

Real GDP growth

(in percent)

— Italy



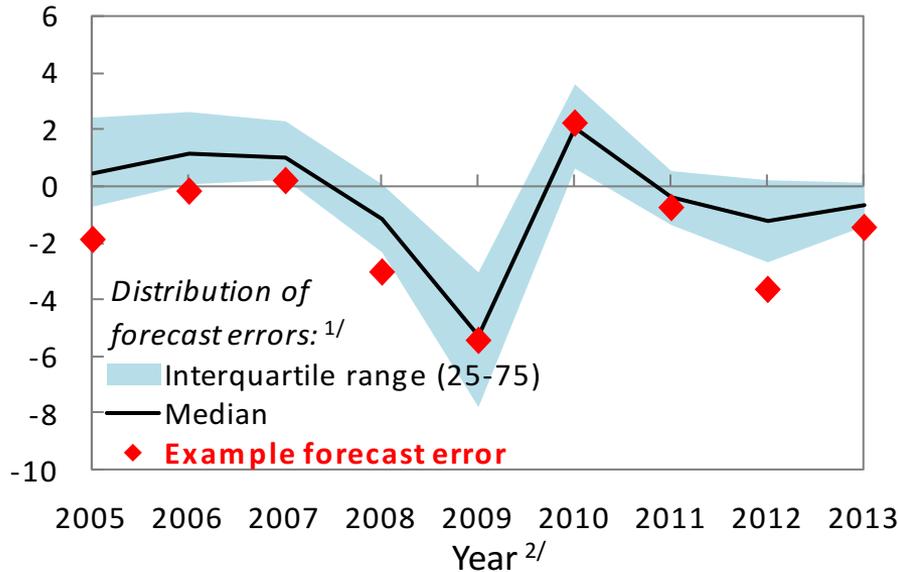
Forecast Track Record

Real GDP Growth

(in percent, actual-projection)

Example median forecast error, 2005-2013: **-1.49**

Has a percentile rank of: **10%**

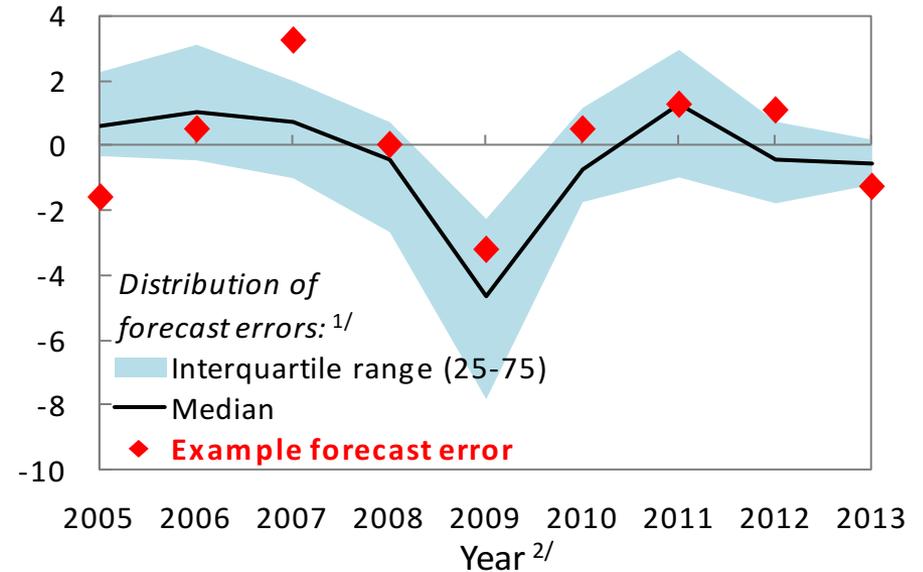


Primary Balance

(in percent of GDP, actual-projection)

Example median forecast error, 2005-2013: **0.49**

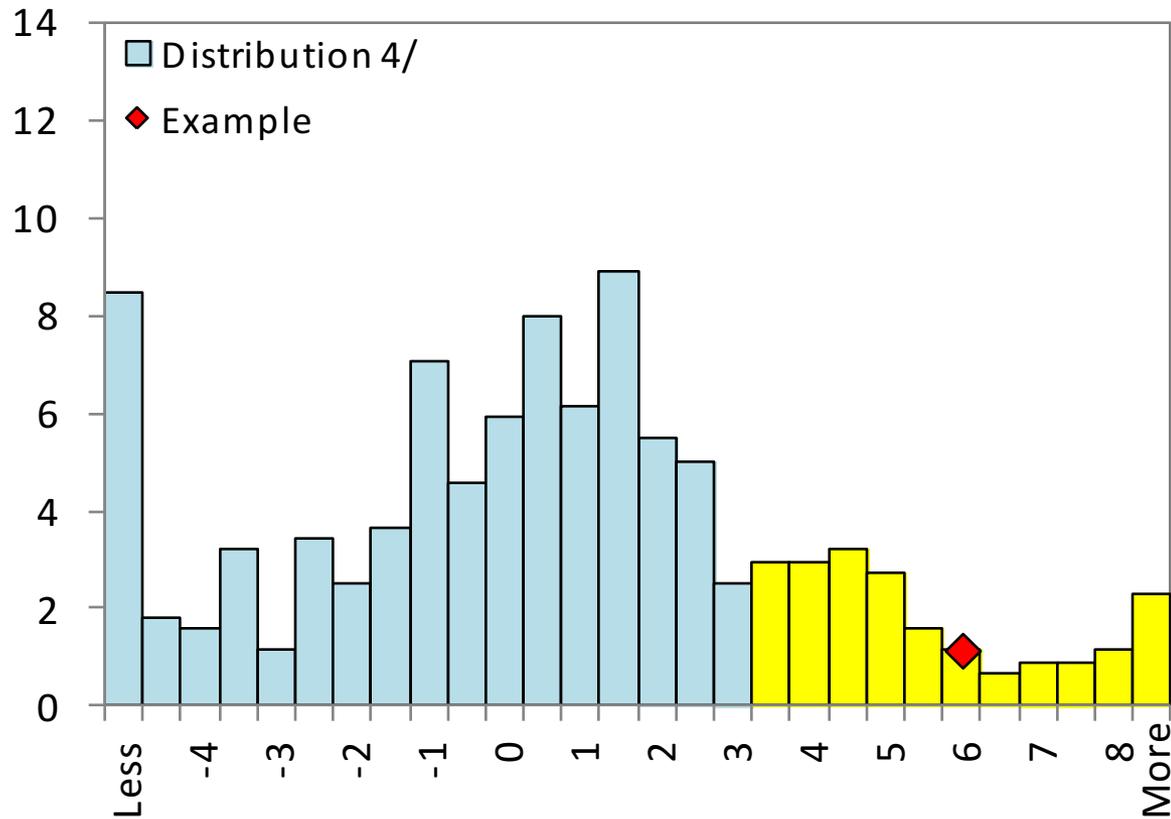
Has a percentile rank of: **75%**



Projected Fiscal Adjustment

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

(Percent of GDP)



Risk-Based Outputs

Lower scrutiny



Basic DSA



where relevant Customized and contingent liabilities analysis

Higher scrutiny



Basic DSA



Realism of baseline assumptions

Heat map, stress tests, debt profile, fan charts

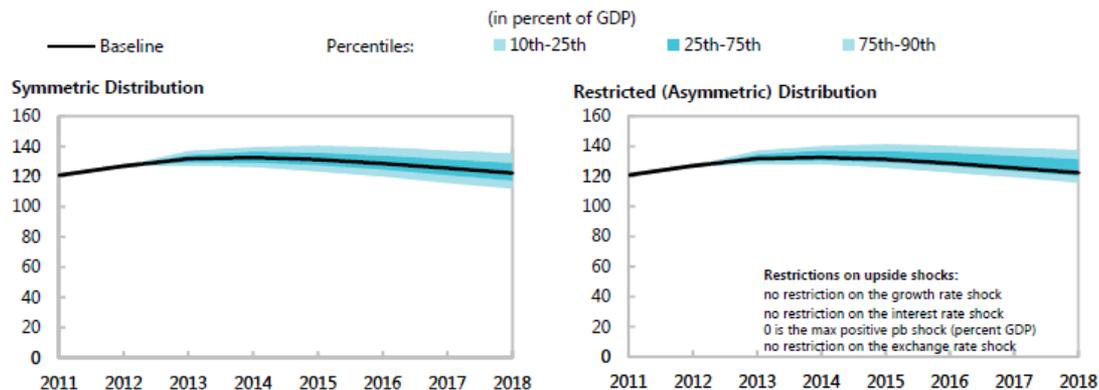


DSA write-up

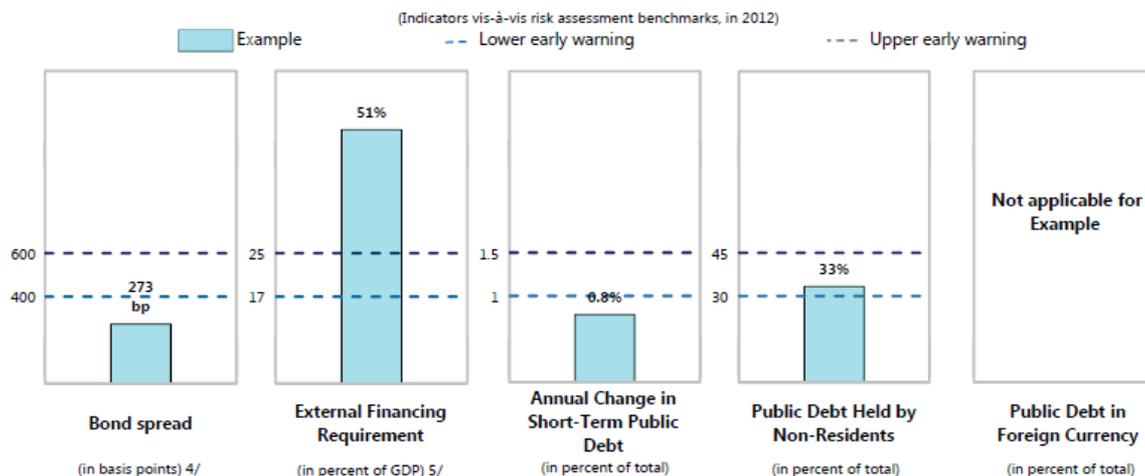
Three additional modules: Heat Map, Debt Profile, Fan Charts

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



Debt Profile Vulnerabilities



Heat Map

Heat Map

Debt level ^{1/}

Gross financing needs ^{2/}

Debt profile ^{3/}

Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability shock
Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability Shock
Market Perception	External Financing Requirements	Change in the Share of Short-Term Debt	Public Debt Held by Non-Residents	Foreign Currency Debt

Heat Map

Debt Burden Benchmarks (%)		
	Debt-to-GDP	GFN-to-GDP
Emerging Markets	70	15
Advanced Economies	85	20

Risk level	Baseline above benchmark?	Stress test above benchmark?
High	Yes	Yes
Moderate	No	Yes
Low	No	No

Stress Tests

Primary balance shock

pass-through to higher interest rate

Real GDP growth shock

primary balance deteriorates,
interest rate increases,
inflation declines

Real interest rate shock

Real exchange rate shock

pass-through to higher inflation

Interactions are built-in and there is scope for customization

Snap Shot of recent DSAs for G20 Countries: Debt Level

AE/EM	Scrutiny	Country	Debt to GDP	Growth Shock	Primary Balance Shock	Interest Rate Shock	Exchange Rate Shock
AM	Higher	Canada	86.8	Red	Red	Red	Red
AM	Higher	France	94.3	Red	Red	Red	Red
AM	Higher	Germany	75.1	Green	Red	Red	Red
AM	Higher	Italy	135.2	Red	Red	Red	Red
AM	Higher	Japan	243.2	Red	Red	Red	Red
AM	Higher	Spain	98.7	Red	Red	Red	Red
AM	Higher	United Kingdom	92.0	Red	Red	Red	Red
AM	Higher	United States	107.3	Red	Red	Red	Red
AM	Lower	Australia	31.2	Green	Green	Green	Green
AM	Lower	Korea	37.7	Green	Green	Green	Green
EM	Higher	Brazil	72.0	Red	Red	Red	Red
EM	Higher	India	67.3	Yellow	Green	Green	Green
EM	Higher	Mexico	47.8	Green	Green	Green	Green
EM	Higher	South Africa	43.8	Green	Green	Green	Green
EM	Higher	Turkey	35.4	Green	Green	Green	Green
EM	Lower	China	18.3	Green	Green	Green	Green
EM	Lower	Indonesia	26.8	Green	Green	Green	Green
EM	Lower	Russia	15.5	Green	Green	Green	Green
EM	Lower	Saudi Arabia	2.6	Green	Green	Green	Green

Snap Shot of recent DSAs for G20 Countries: Gross Financing Needs

AE/EM	Scrutiny	Country	GFN to GDP	Growth Shock	Primary Balance Shock	Interest Rate Shock	Exchange Rate Shock
AM	Higher	Canada	18.3	Red	Red	Red	Red
AM	Higher	France	8.8	Green	Green	Green	Green
AM	Higher	Germany	15.4	Green	Green	Green	Green
AM	Higher	Italy	23.8	Red	Red	Red	Red
AM	Higher	Japan	54.8	Red	Red	Red	Red
AM	Higher	Spain	20.5	Red	Red	Red	Red
AM	Higher	United Kingdom	11.7	Green	Green	Green	Green
AM	Higher	United States	22.9	Red	Red	Red	Red
AM	Lower	Australia	3.7	Green	Green	Green	Green
AM	Lower	Korea	6.4	Green	Green	Green	Green
EM	Higher	Brazil	14.4	Red	Red	Red	Red
EM	Higher	India	13.1	Yellow	Green	Green	Green
EM	Higher	Mexico	10.9	Green	Green	Green	Green
EM	Higher	South Africa	12.0	Yellow	Green	Green	Green
EM	Higher	Turkey	10.4	Green	Green	Green	Green
EM	Lower	China	1.0	Green	Green	Green	Green
EM	Lower	Indonesia	4.0	Green	Green	Green	Green
EM	Lower	Russia	2.0	Green	Green	Green	Green
EM	Lower	Saudi Arabia	-2.5	Green	Yellow	Green	Green

Risk-Based Outputs

Lower scrutiny



Basic DSA



where relevant Customized and contingent liabilities analysis

Higher scrutiny



Basic DSA



Realism of baseline assumptions

Heat map, stress tests, debt profile, fan charts



DSA write-up

DSA Write Up

Presents overall assessment of debt sustainability risks

Highlights vulnerabilities and country specific circumstances that mitigate or amplify risks

Discusses background and key assumptions including realism of the baseline

Thank you!



Additional slides

Fan Charts: Stochastic Simulations of Debt Paths

Evolution of Predictive Densities of Gross Nominal Public Debt

(in percent of GDP)

— Baseline

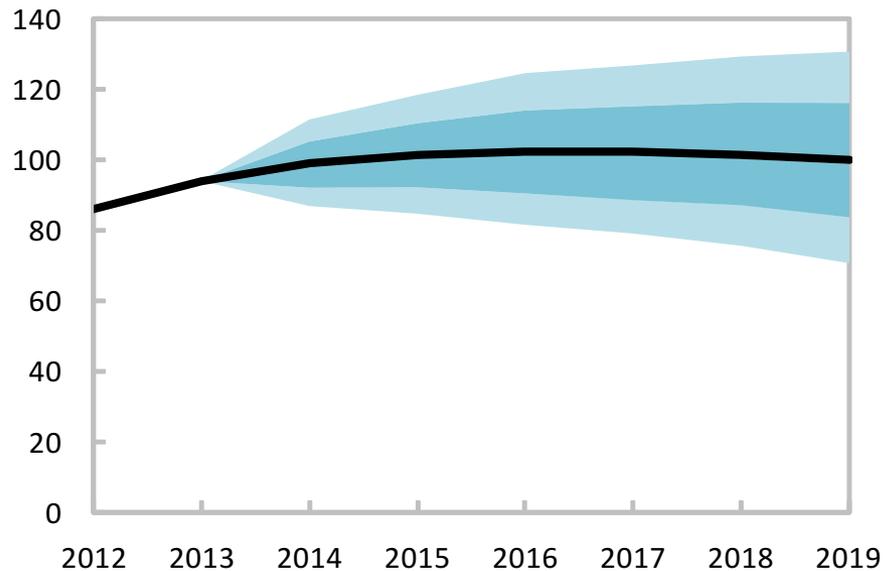
Percentiles:

■ 10th-25th

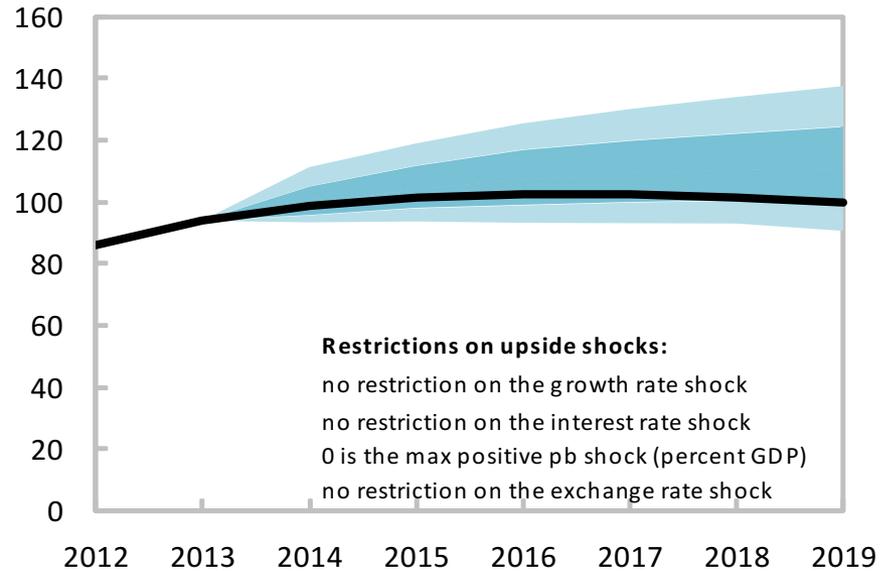
■ 25th-75th

■ 75th-90th

Symmetric Distribution



Restricted (Asymmetric) Distribution



Debt Profile

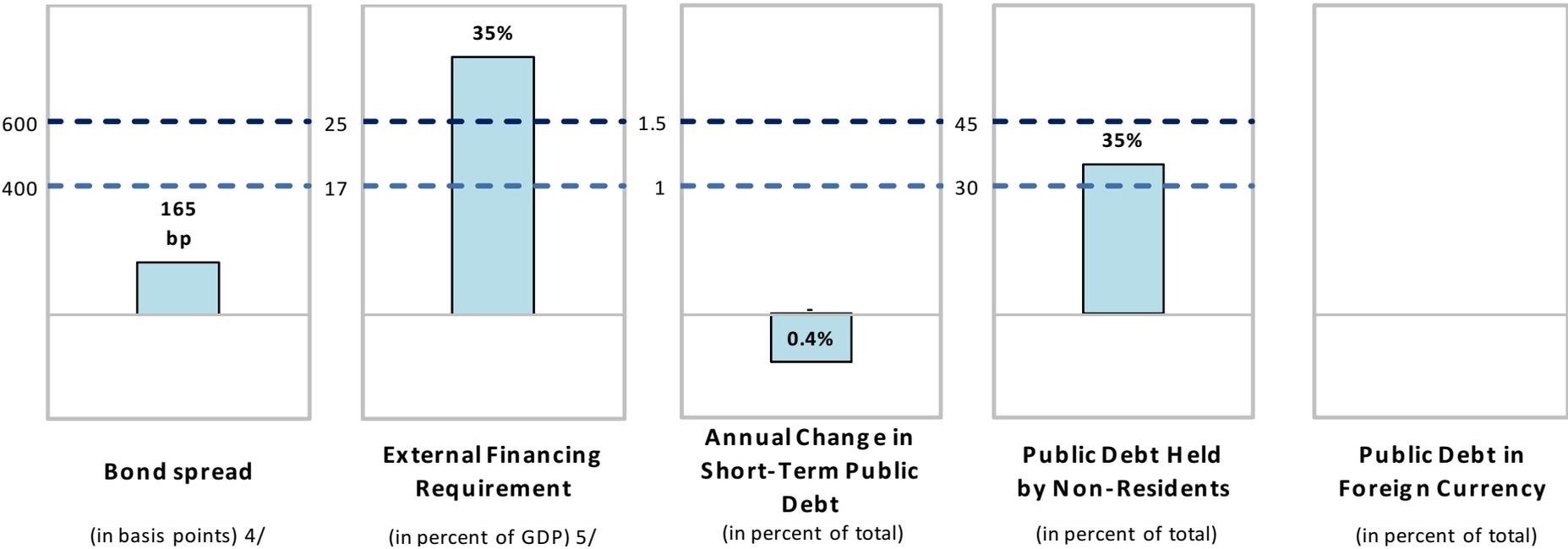
Debt Profile Vulnerabilities

(Indicators vis-à-vis risk assessment benchmarks, in 2013)

Example

Lower early warning

Upper early warning



Snap Shot of recent DSAs for G20 Countries: Debt Profile

AE/EM	Scrutiny	Country	Market Perception	External Financing Requirement	Change in the Share of ST Debt	Public Debt Held by Non-Residents	Foreign Currency Debt
AM	Higher	Canada	Green	Red	Green	Green	Green
AM	Higher	France	Green	Green	Green	Red	Green
AM	Higher	Germany	Green	White	Green	Red	Green
AM	Higher	Italy	Green	Red	Green	Green	Green
AM	Higher	Japan	Green	Green	Green	Green	Green
AM	Higher	Spain	Green	Red	Green	Yellow	Green
AM	Higher	United Kingdom	Green	Green	Green	Green	Green
AM	Higher	United States	Green	Red	Green	Yellow	Green
AM	Lower	Australia	Green	White	Green	Red	Green
AM	Lower	Korea	Green	White	Green	Green	Green
EM	Higher	Brazil	Yellow	Yellow	Green	Yellow	Green
EM	Higher	India	Yellow	Yellow	Green	Green	Green
EM	Higher	Mexico	Green	Yellow	Yellow	Red	Yellow
EM	Higher	South Africa	Yellow	Yellow	Green	Yellow	Green
EM	Higher	Turkey	Yellow	Red	Yellow	Yellow	Yellow
EM	Lower	China	Green	Green	Green	Green	Green
EM	Lower	Indonesia	Yellow	White	Yellow	Red	Yellow
EM	Lower	Russia	White	Yellow	Green	Green	Green
EM	Lower	Saudi Arabia	Green	White	Green	Green	Green