

Fiscal Risk Analysis & Management

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IMF

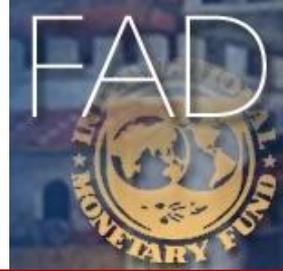
Fiscal Affairs Department

Path for the Public Finances, 2017: Fiscal Risks

Irish Fiscal Advisory Council Conference

March 30, 2017





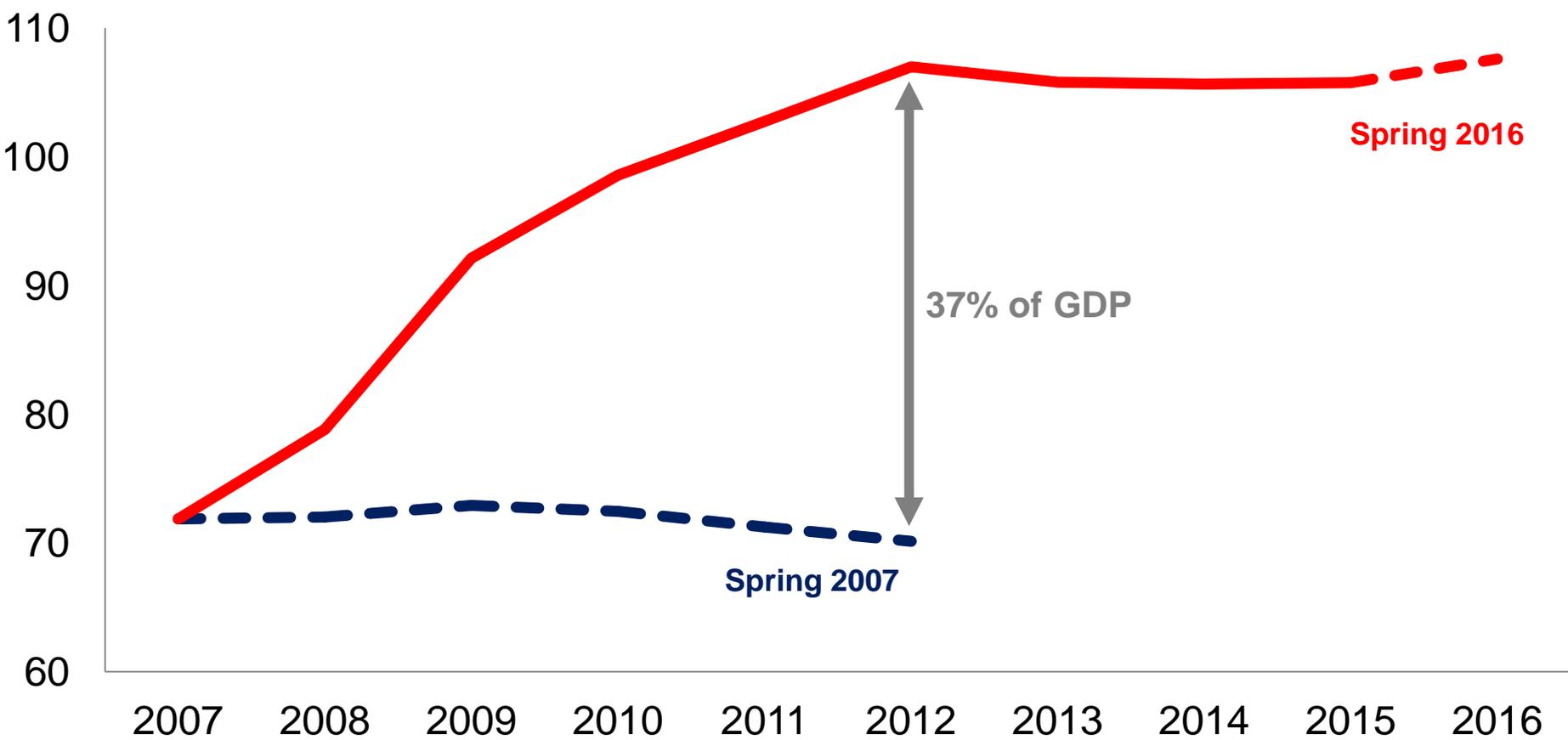
Outline of Presentation

- I. Why Fiscal Risks Matter**
- II. Characteristics of Fiscal Risk**
- III. Understanding & Management of Fiscal Risks**
- IV. Strengthening Fiscal Risk Analysis & Mitigation**
- V. Fiscal Risks and Fiscal Rules**
- VI. Conclusions**

I. Why Fiscal Risks Matter

a. Public Debt Forecasts for Advanced Economies

Advanced Economies: Public Debt
(2007-2016, Percent of GDP)



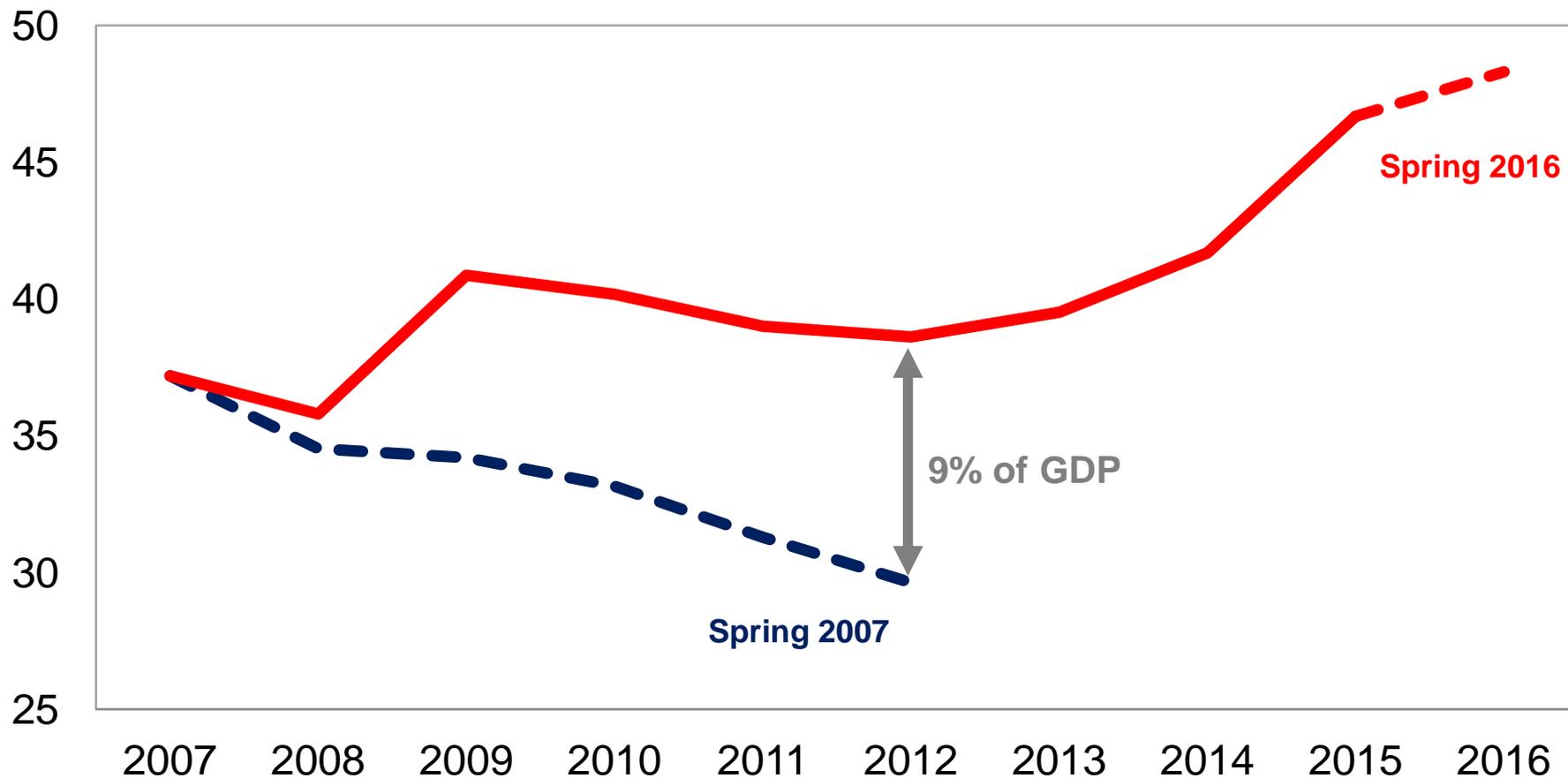
Source: *Fiscal Monitor* Database and staff estimates.

I. Why Fiscal Risks Matter

b. Public Debt Forecasts for Emerging Economies

Emerging Economies, Excluding China: Public Debt

(2007-2016, Percent of GDP)



I. Why Fiscal Risks Matter

c. How Fiscal Risks Impact on Fiscal Outcomes

Unexpected Increase in General Government Debt
(percent of GDP, 2007-2010)

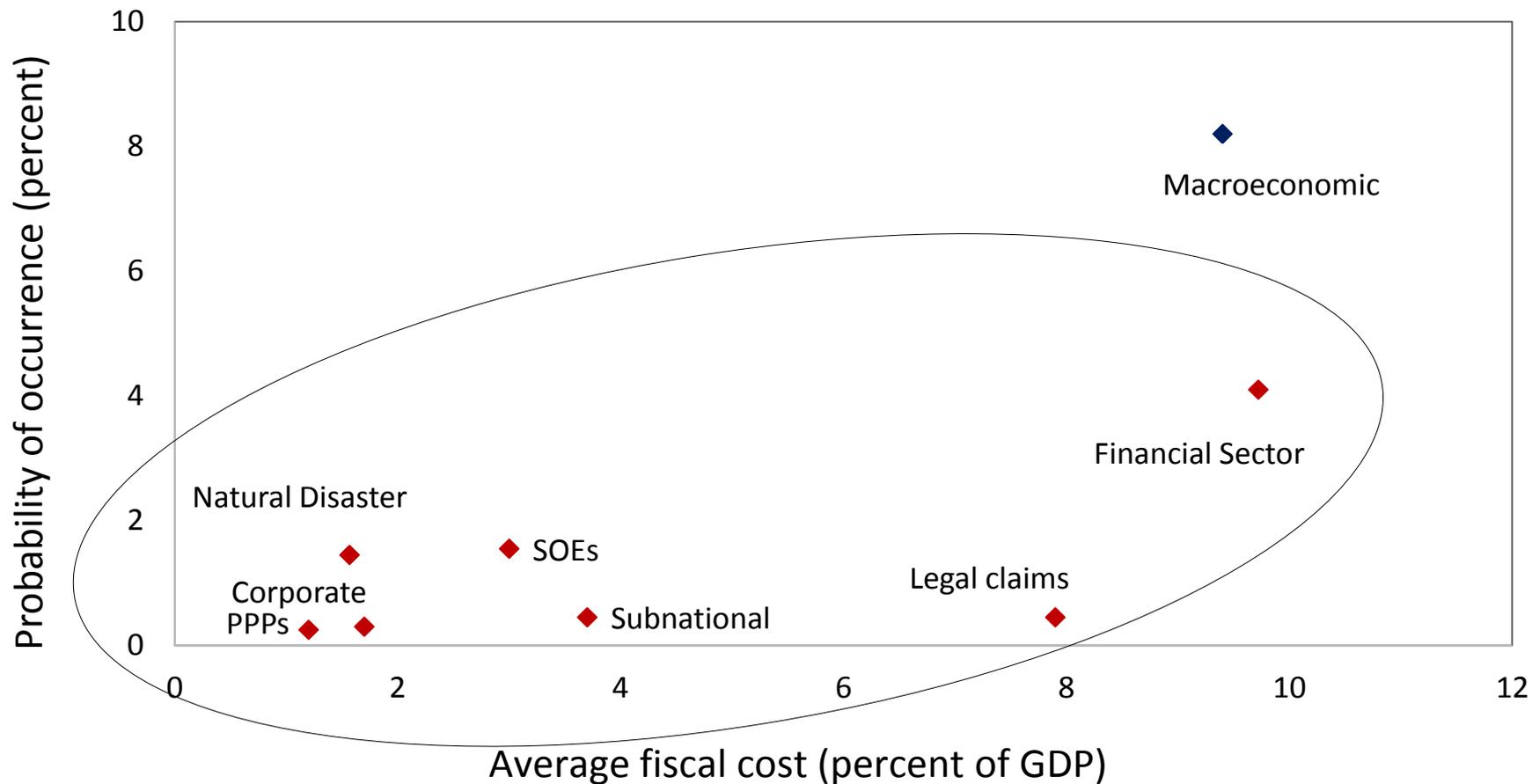
	FRA	DEU	NLD	ESP	PRT	GBR	USA	GRC	IRL	ISL	AVE*	Issues Revealed by the Crisis
Underlying fiscal position	1.7	3.2	-2.4	1.8	11.3	3.7	8.1	16.3	1.3	10.9	6.0	Unreported Deficits
Revisions to 2007 deficit & debt	1.7	1.8	-0.9	-0.1	0.1	1.5	7.1	2.5	1.6	4.0	4.7	
Changes to government boundary	-0.7	1.4	-0.2	0.6	9.4	1.9	0.9	11.2	-0.1	2.5	1.1	SoEs & PPPs
Cash-accrual adjustments	0.7	0.0	-1.3	1.3	1.7	0.3	0.0	2.6	-0.2	4.5	0.2	Arrears
Exogenous shocks	8.4	12.8	14.2	15.4	8.1	17.0	6.3	40.0	60.2	39.5	9.8	Macroeconomic Risks
Macroeconomic shocks	8.3	4.7	5.2	13.0	4.4	8.9	3.8	38.4	35.7	-3.3	6.0	
Financial sector interventions	0.0	8.1	9.0	2.5	3.6	8.1	2.5	1.6	24.5	42.8	3.8	Contingent Liabilities
Policy changes	2.3	3.8	1.9	4.9	4.7	1.1	6.4	-8.0	-9.9	-4.3	4.7	Stimulus / Consolidation
Other factors	2.1	-0.3	6.5	1.9	3.7	6.2	8.3	-6.7	7.5	21.6	5.9	
Total Unforecast Increase in Debt	14.4	19.5	20.2	24.0	27.8	28.0	29.1	41.7	59.1	67.7	26.4	

* GDP-weighted average

II. Characteristics of Fiscal Risks

a. Fiscal risks are large (and surprisingly frequent)

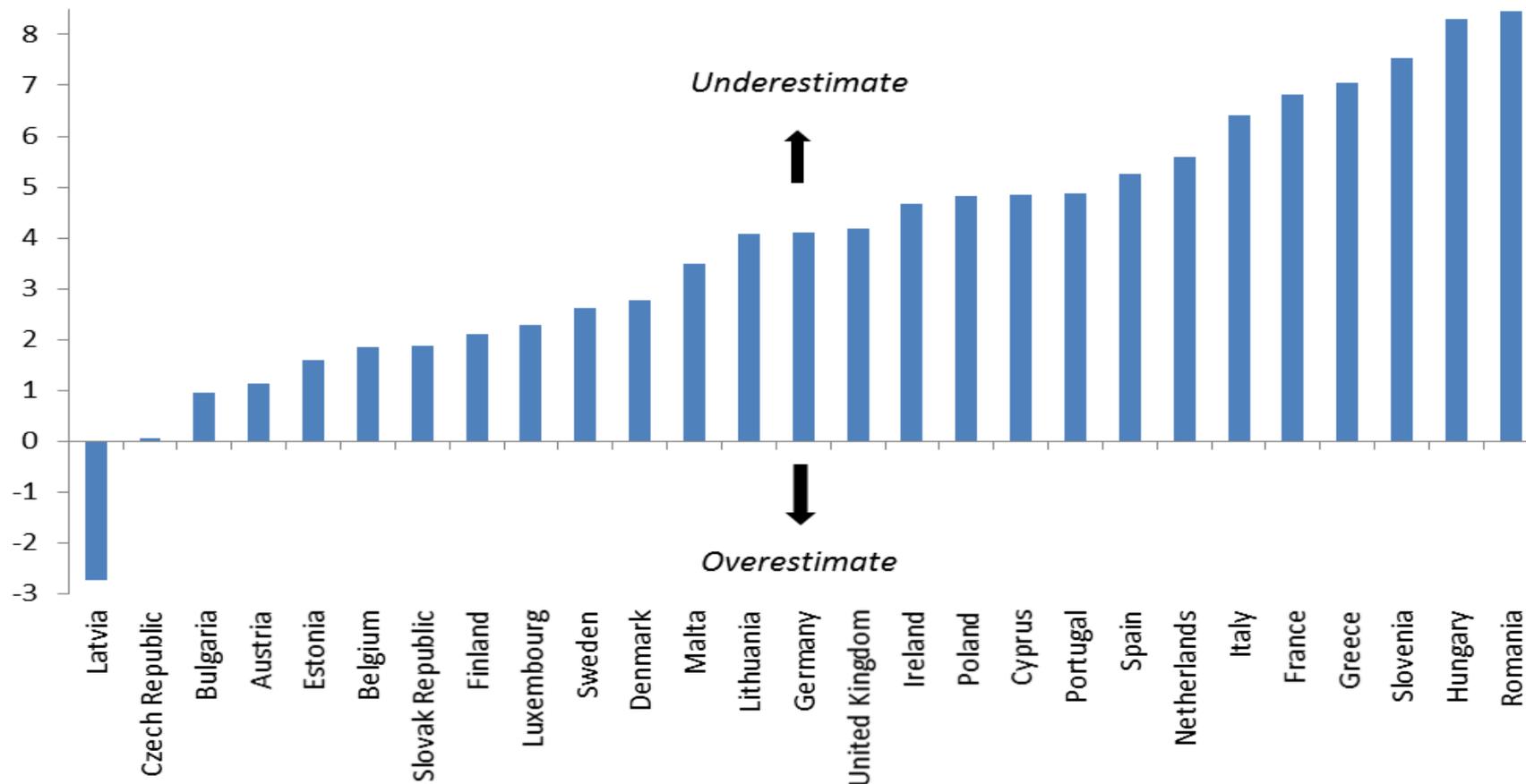
Size and likelihood of fiscal shocks by type



II. Characteristics of Fiscal Risks

b. Fiscal risks are biased toward the downside

Forecast Error for General Government Debt in Y+3
(2000-13 average as % of GDP, actual-forecast)

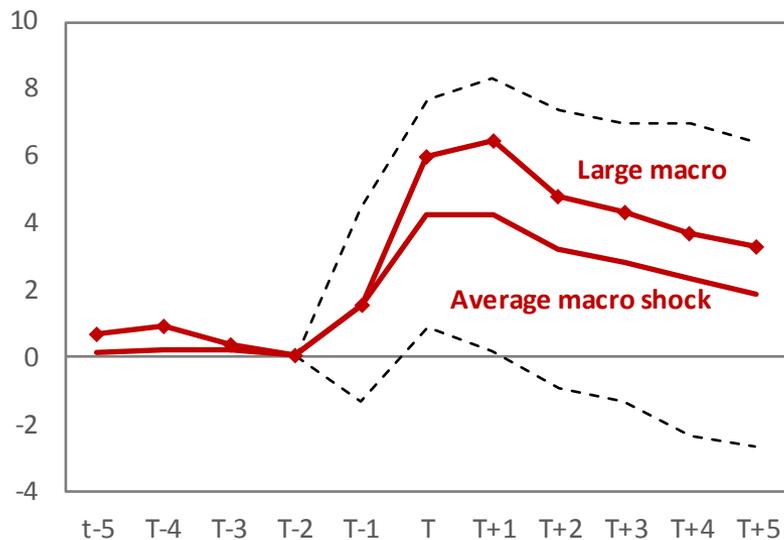


II. Characteristics of Fiscal Risks

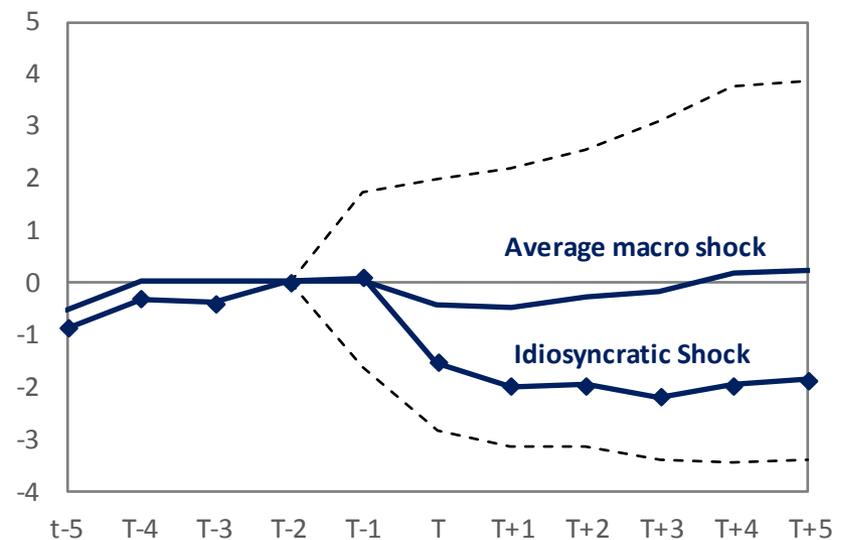
c. Fiscal risks are non-linear

Typical Fiscal Reaction to Macro shocks

Expenditure Variation
(percent of GDP)



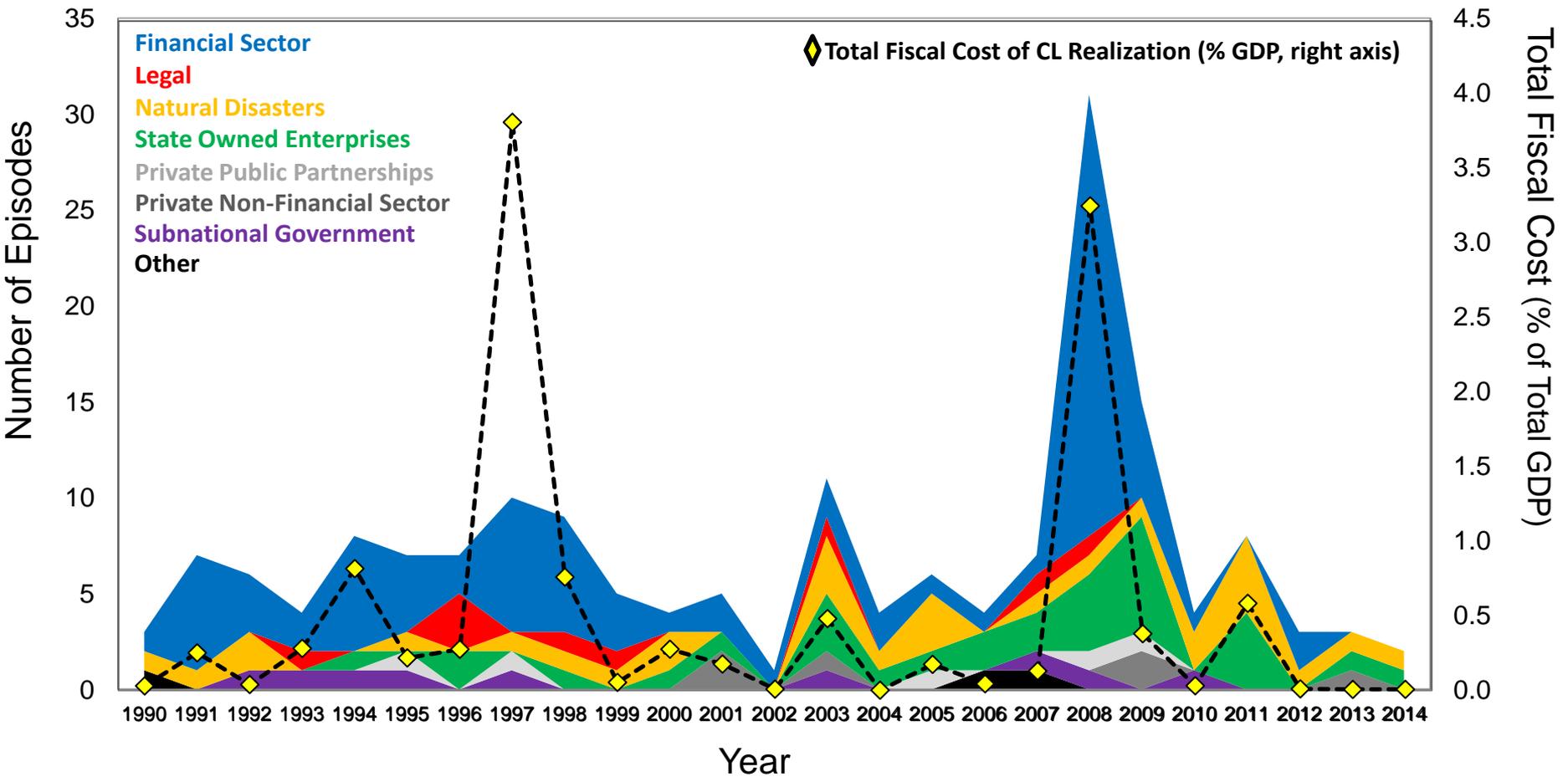
Revenue Variation
(percent of GDP)



II. Characteristics of Fiscal Risks

d. Fiscal risks are highly correlated

Contingent Liability Realizations

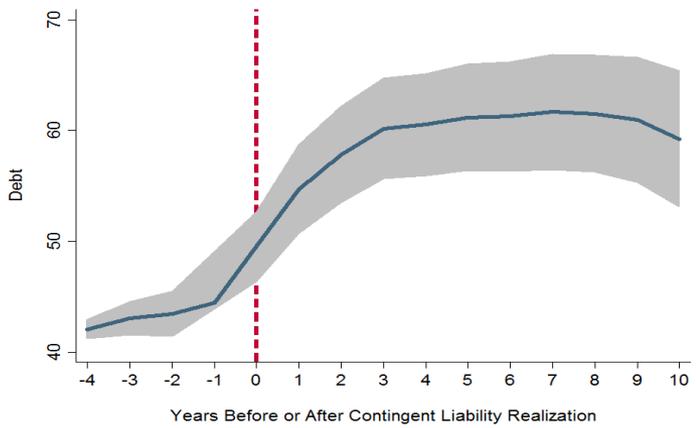


Source: Bova et al. (2016)

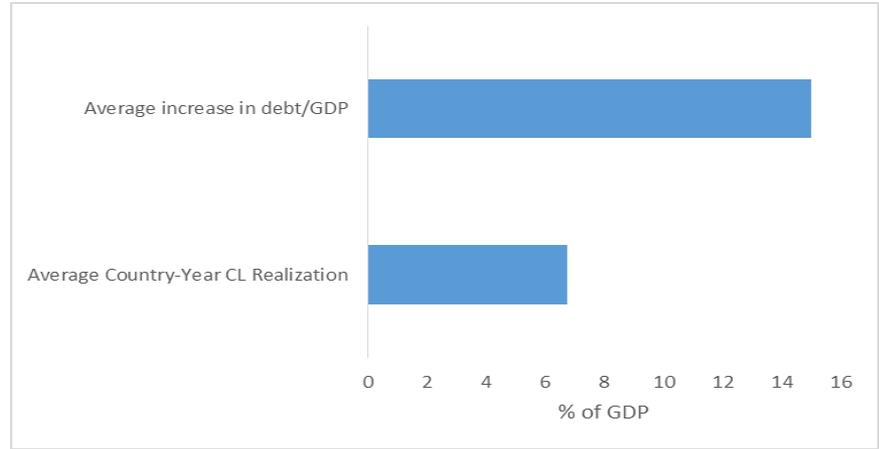
II. Characteristics of Fiscal Risks

e. With broader implications

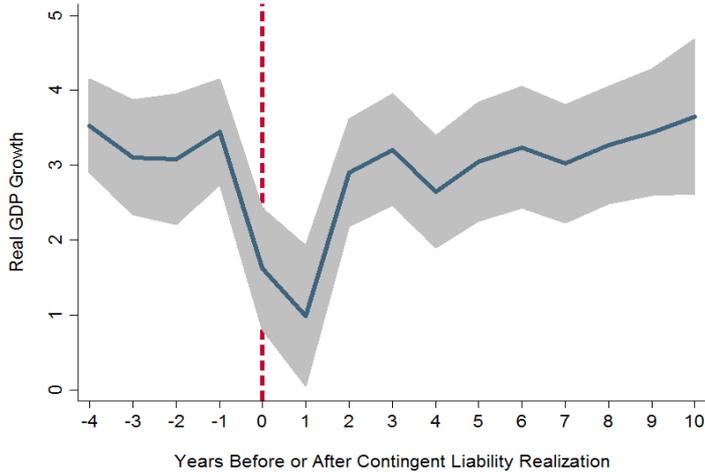
Debt



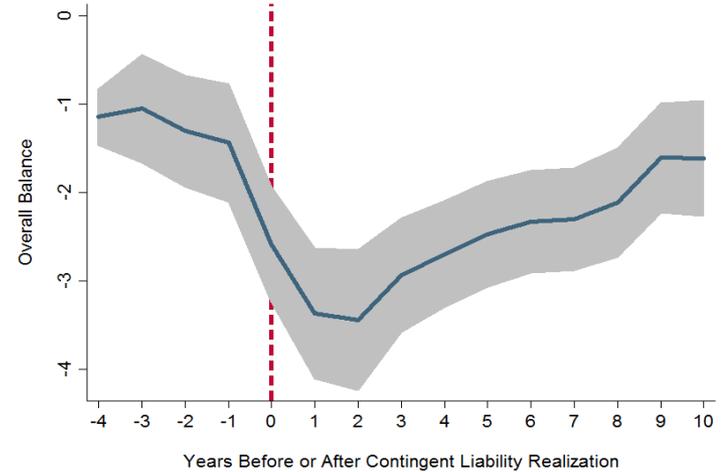
Increase in Debt



GDP



Fiscal Balance



III. Understanding and Management of Fiscal Risks

a. Fiscal Transparency Code

Risk Disclosure & Analysis

- Macroeconomic Risks
- Specific Fiscal Risks
- Long-Term Sustainability

Risk Management

- Budgetary Contingencies
- Asset and Liability Management
- Guarantees, PPPs and Financial Sector
- Natural Resources and Environmental

Fiscal Coordination

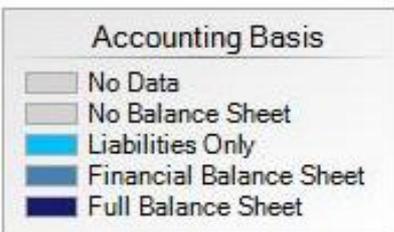
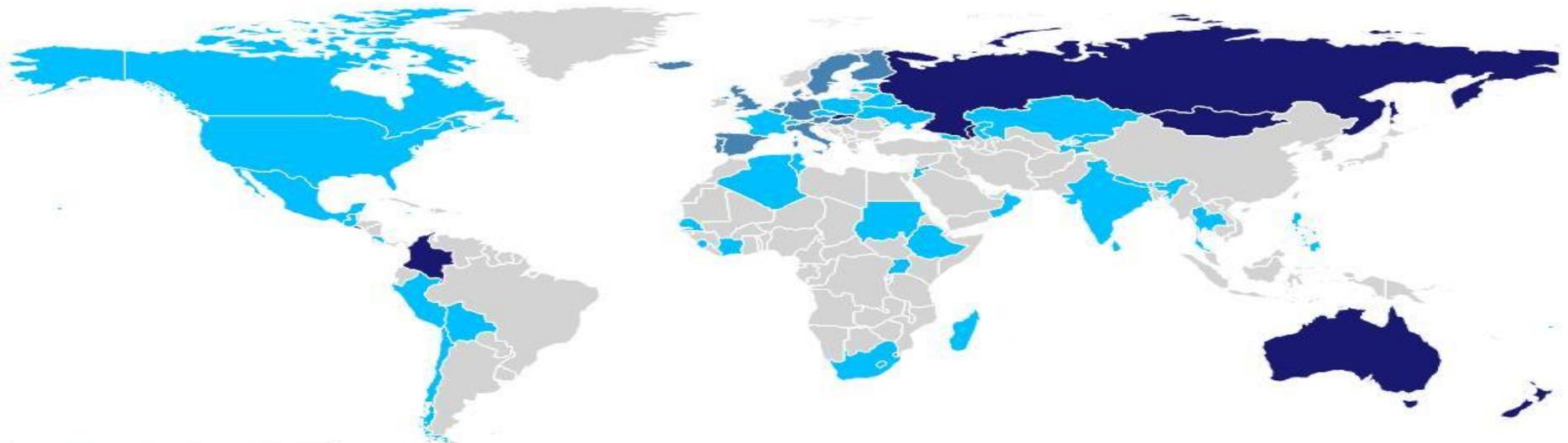
- Sub-National Governments
- Public Corporations

III. Understanding & Management of Fiscal Risks

b. Balance sheet data has improved

Coverage of Balance Sheet Data (GFS)

2003

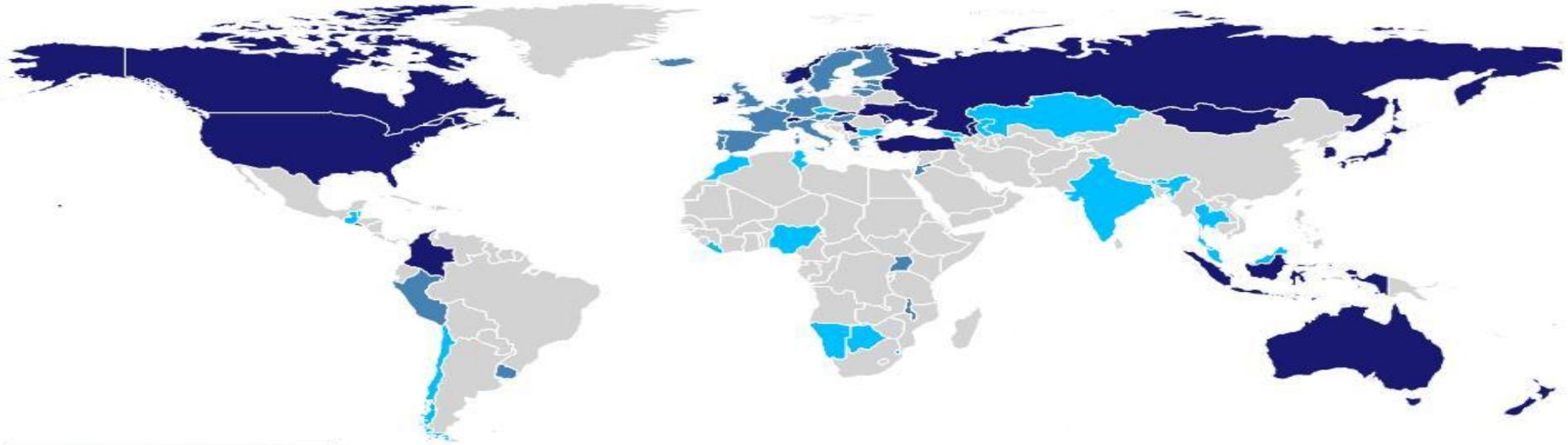


III. Understanding & Management of Fiscal Risks

c. Balance sheet data has improved

Coverage of Balance Sheet Data (GFS)

2013

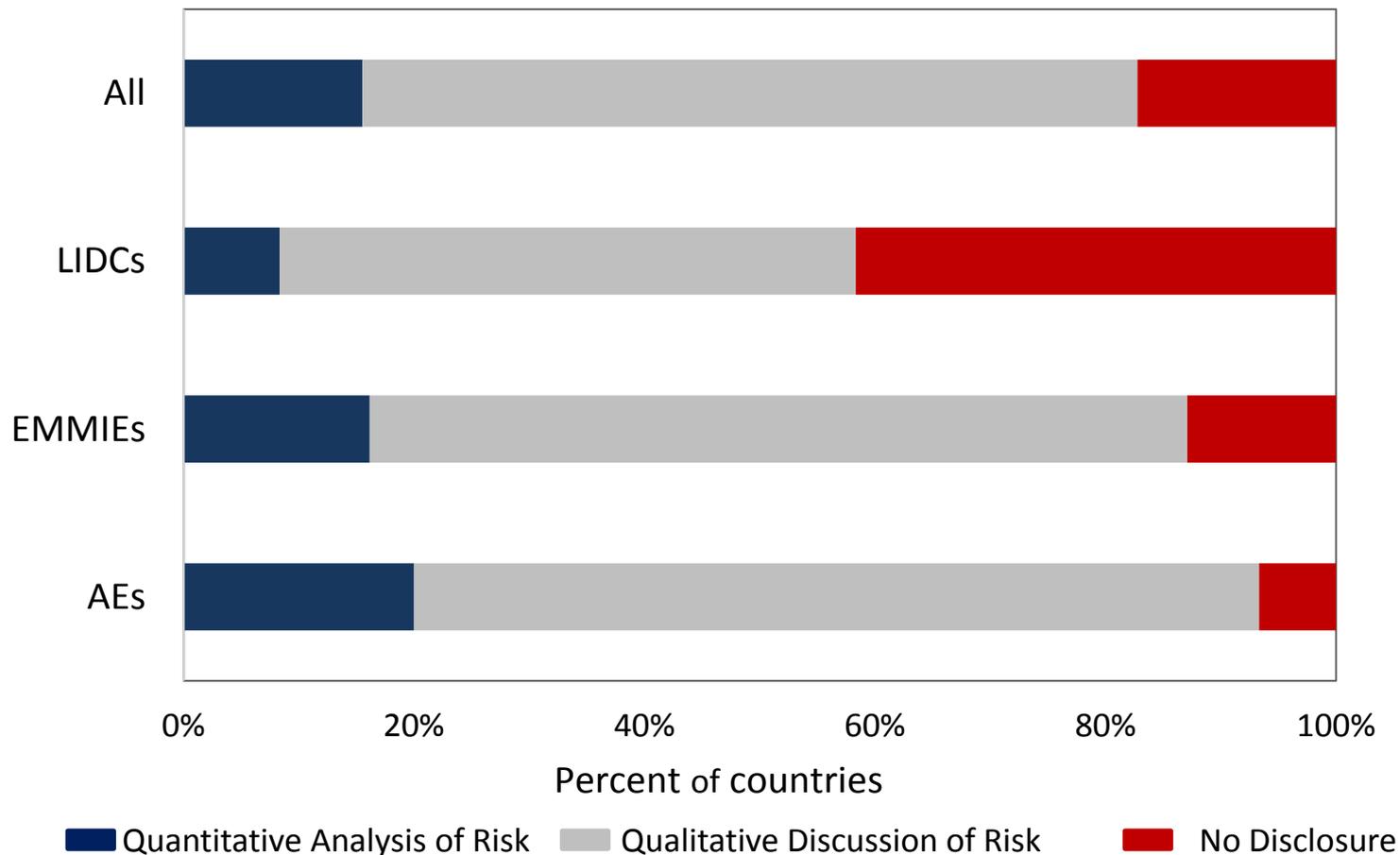


Accounting Basis	
	No Data
	No Balance Sheet
	Liabilities Only
	Financial Balance Sheet
	Full Balance Sheet

III. Understanding & Management of Fiscal Risks

d. Disclosure of risks remains qualitative

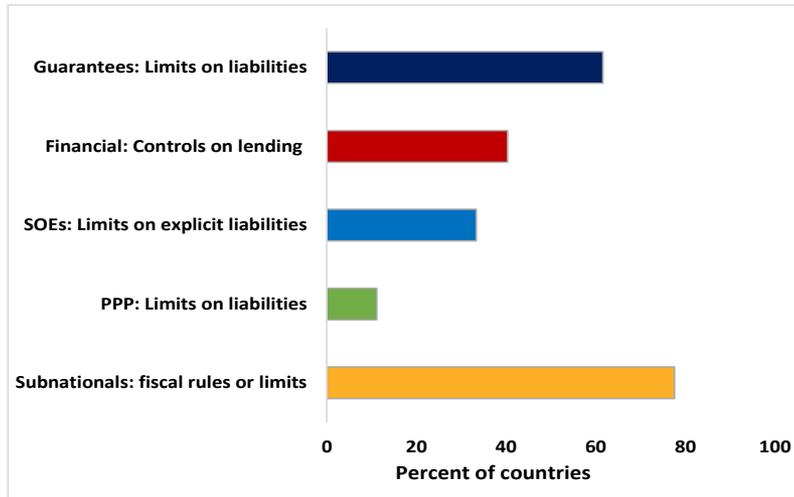
Contingent Liabilities



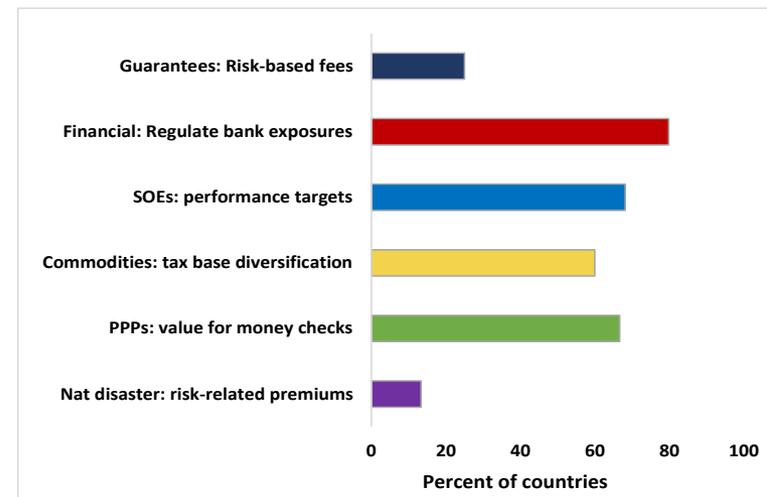
III. Understanding & Management of Fiscal Risks

e. Mitigation efforts are ad hoc and fragmented

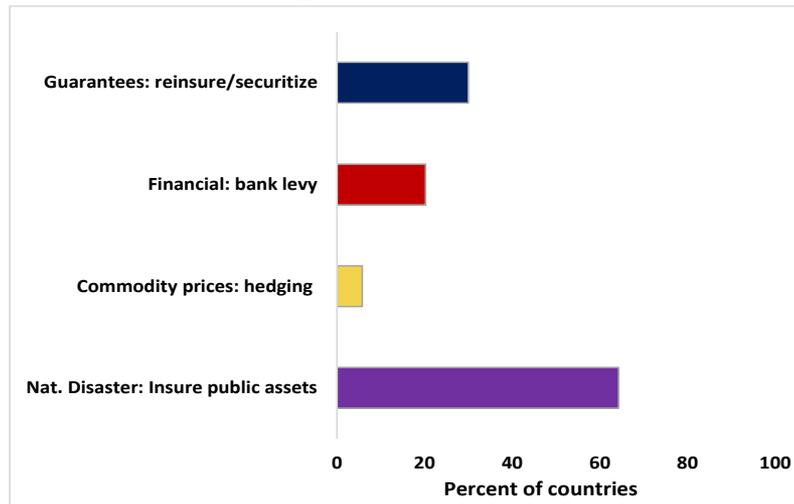
Direct controls and limits on exposure



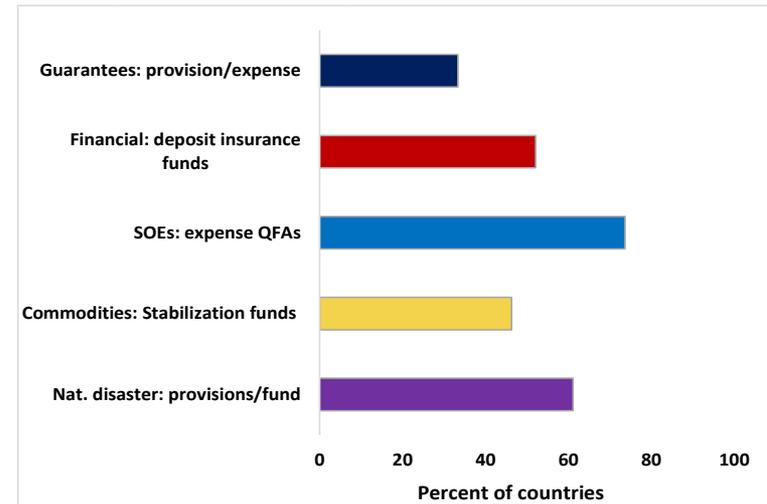
Regulations, incentives, and other measures



Transfer or sharing of risks



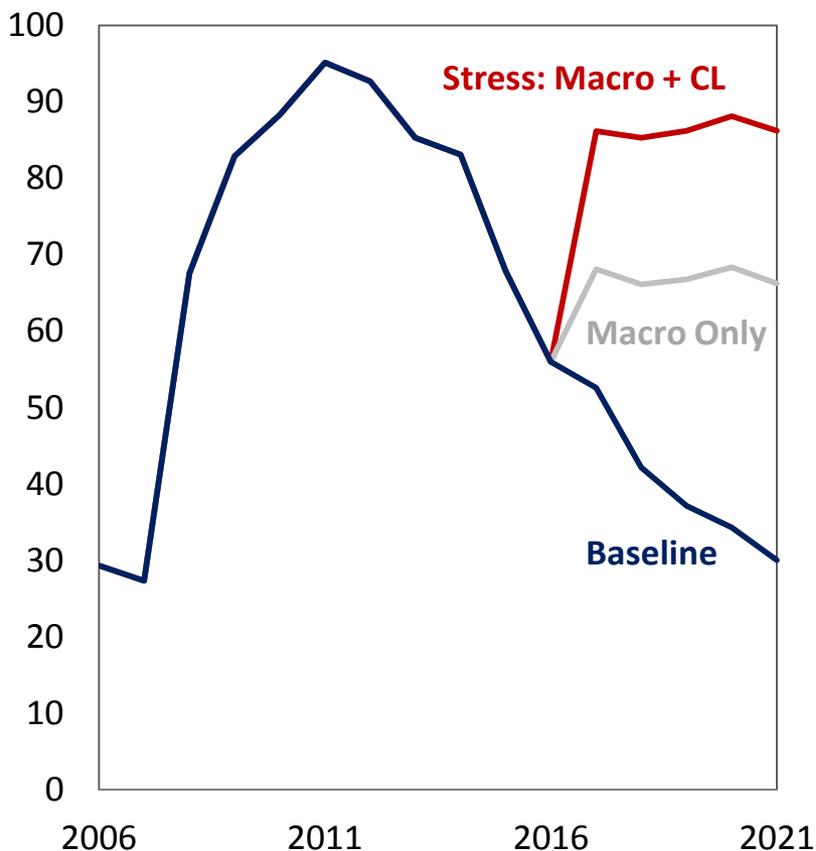
Budget provisioning



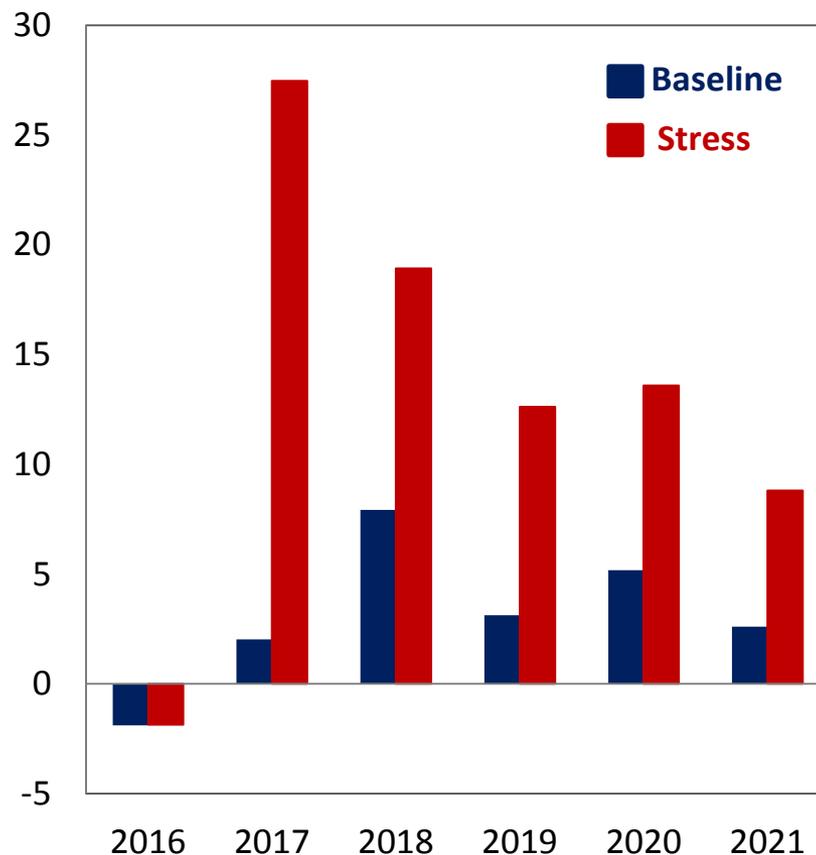
IV. Strengthening Fiscal Risk Analysis & Mitigation:

a. Fiscal Stress Test – debt and liquidity

Public Debt
(Percent of GDP)



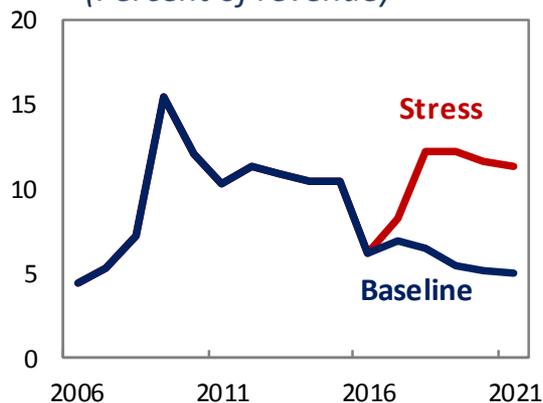
Liquidity: Gross Financing
(Percent of GDP)



IV. Strengthening Fiscal Risk Analysis & Mitigation:

b. Fiscal Stress Test – solvency and fiscal burden

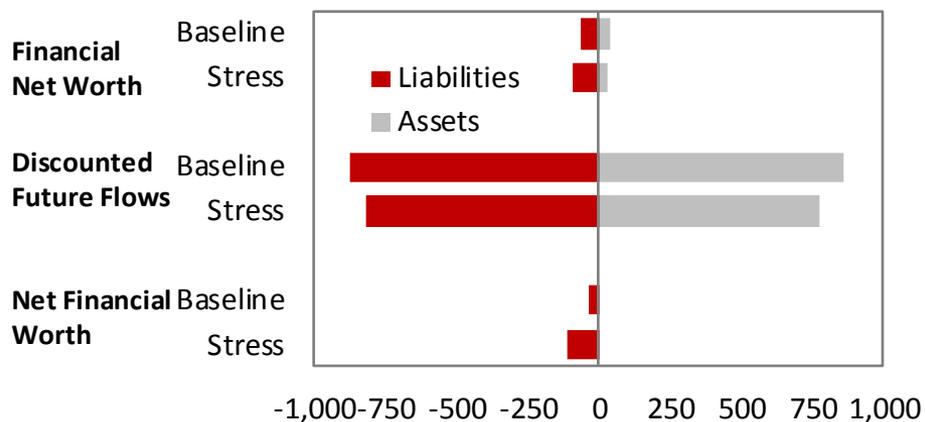
Fiscal Burden: Interest Cost
(Percent of revenue)



Comprehensive Balance Sheet
(Percent of 2017 baseline GDP)

	Baseline	Shock
Financial assets	903.5	811.1
Currency and deposits	9.2	9.0
Loans	8.5	8.4
Shares and other equities	17.9	9.0
Other accounts receivable	7.0	7.0
NPV Revenues	860.2	777.0
Liabilities	942.9	918.6
Securities other than shares	21.8	42.8
Loans	20.4	27.3
Insurance technical reserves	18.0	18.1
Other accounts payable	7.4	7.4
NPV Expenditures	875.3	823.0
Net Financial Worth	-39.4	-107.6
Existing Net Financial Worth	-24.3	-61.6
Future discounted deficits	-15.1	-46.0

Solvency: Net Financial Worth
(Percent of 2017 GDP)



IV. Strengthening Fiscal Risk Analysis & Mitigation:

c. Netherlands Stress Test

Netherlands conducted two stress tests in 2011 and 2013 for a range of stress scenarios

Netherlands: Stress scenarios

Exogenous variable (GDP is endogenous)	Financial crisis	European crisis	Global crisis
Relevant world trade	-15%	-7,5%	-15% (y5)
Share prices	-40%	-40%	-50%
House prices	-10%	-20%	0%
Energy price in euro	-20%	0%	-35%
Import price in euro	-5%	0%	-15%
Nominal interest rate (10y)	-0,8%*	0%*	-1%*
Euro/Dollar	0%	20% depr.	30% appr.

*percentage point

IV. Strengthening Fiscal Risk Analysis & Mitigation:

d. Netherlands Stress Test

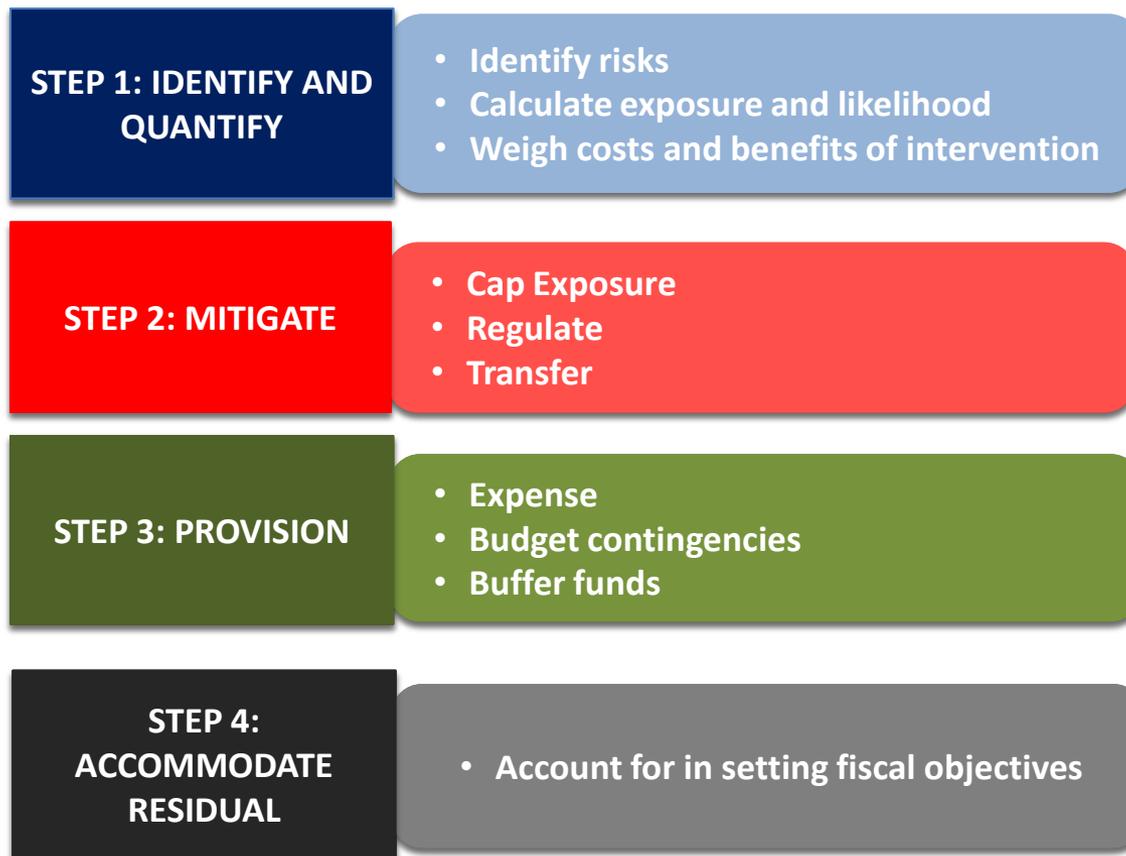
Combined macroeconomic impacts of shock with CL realizations

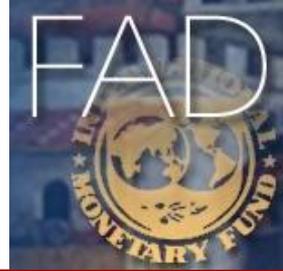
Netherlands: Combined effects of the financial crisis scenario (debt as %GDP)



IV. Strengthening Fiscal Risk Analysis & Mitigation:

e. Fiscal Risk Management Toolkit





IV. Strengthening Fiscal Risk Analysis & Mitigation:

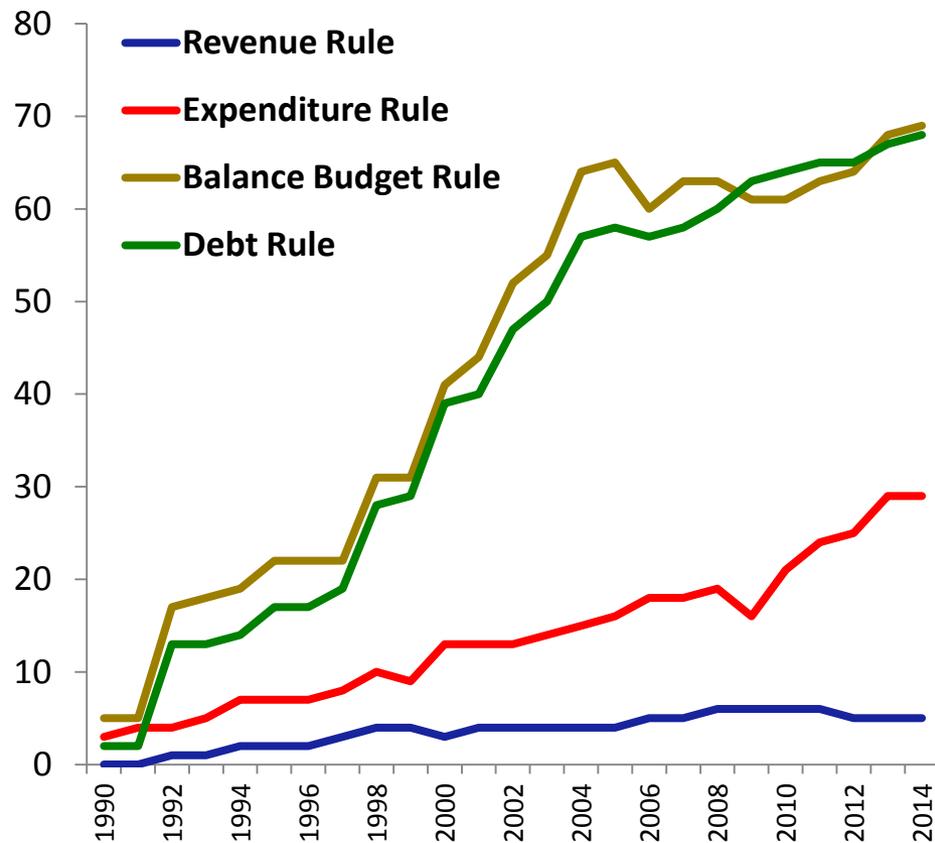
f. An Illustration

Risk	1. Identify & Estimate		2. Reduce Probability			3. Reduce Exposure		4. Absorb Residual		
	Exposure (% of GDP)	Probability (% Annually)	Controls	Incentives	Regulation	Policy instruments	Market instruments	Budget provisioning	Buffer funds	Fiscal headroom
Financial Sector	10	4	Reduce state participation in banks	Reduce debt bias in tax system	Capital adequacy standards	Living wills	Deposit insurance	Expense expected payments (UK)	Deposit insurance funds (US, Canada)	Safe overall debt levels
Natural Disasters	1.6	All: 1 Pacific Islands: 20	Reducing public footprint in risky areas	Tax premia in high risk areas	Env. standards	Building codes Disaster preparedness	Insurance (NZ) Catastrophe bonds (Mexico)	Contingency reserves (Mexico, US)	Natural Disaster Fund (NZ, Turkey)	
Macro shock: e.g. Commodity Prices	20	50	Privatization of commodity producers	Tax base diversification	Commodity market regulation	Resource-based fiscal rules (Norway)	Hedging instruments (Mexico)	Prudent price assumptions (Chile)	Stabilization funds (Chile)	
Guarantees	10.5 (EU AVG)	N/A	Ceilings on issuance (Netherlands)	Risk related fees (Sweden)	Conditions on access to guarantee schemes	Obligation is contractual	Partial guarantees (Canada)	Expense expected cash flows (US) Provision for exp. calls (Columbia)	Guarantee funds (Sweden)	
State Owned Enterprises	3	1.6	Reduce size SOE sector	Management accountable for performance	Reporting requirements	Progressively reduce QFAs	Explicit no-bail-out clauses	Expense expected payments	-	
Subnational government	3.5	0.6	Limits on borrowing (Hungary)	Link degree of autonomy to performance (Iceland)	Reporting requirements	Adjustment plans for deviations from fiscal rules	Est. history of no-bail-outs (US)	Ceilings on annual budget allocations	-	

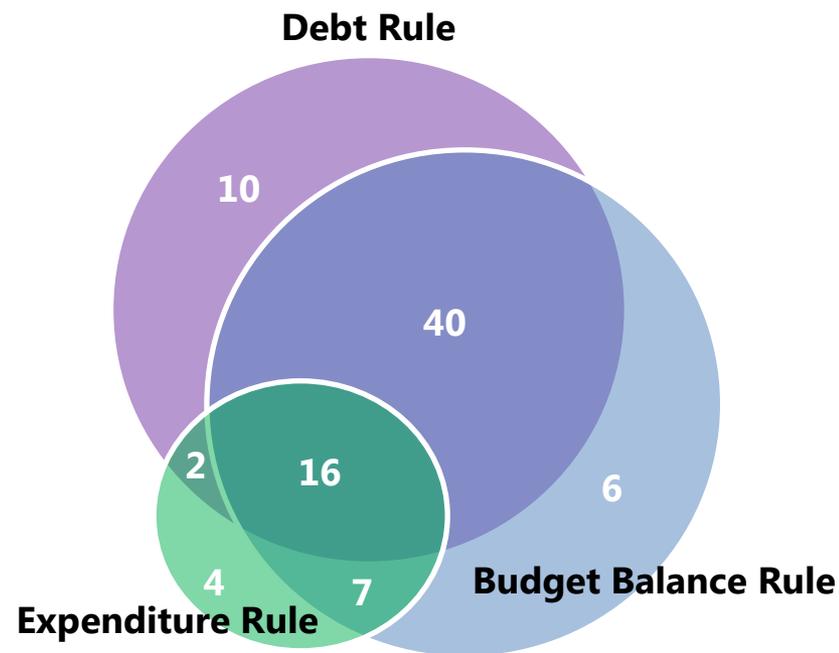
V. Fiscal Risks and Fiscal Rules

a. Trends in fiscal rule adoption

Adoption of Fiscal Rules
(Count of Countries with Each Rule)



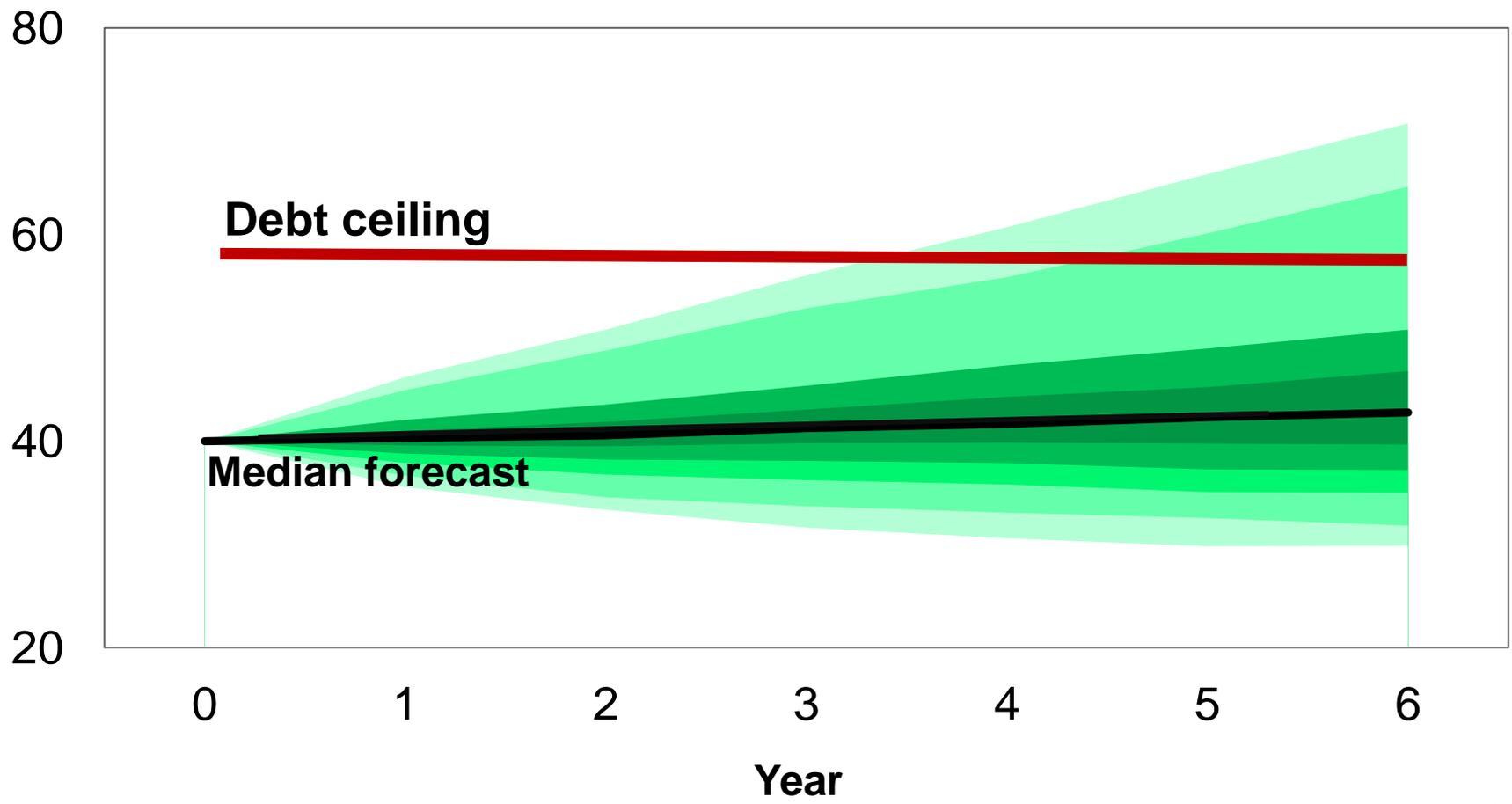
Combination of Fiscal Rules
(2014)



V. Fiscal Risks and Fiscal Rules

b. Integrating fiscal risk analysis & policymaking

European Emerging Market Economy
(In percent of GDP)



VI. Conclusions

a. Fiscal risk analysis

- Priority reforms for many intermediate capacity countries include:
 - *Developing alternative macro-fiscal scenarios*
 - *Preparing full balance sheets*
 - *disclosing all explicit and implicit contingent liabilities*

- High capacity countries (including Ireland) should concentrate on
 - *disclosing the size and probability of contingent liability realizations*
 - *periodic fiscal stress tests*

VI. Conclusions

b. Fiscal risk management

- All countries should *strengthen their institutional arrangements for monitoring and managing risks*
- Countries with relatively low capacity should look to *strengthen direct controls and centralize approval of explicit contingent liabilities*
- Intermediate capacity countries should prioritize *more effective use of risk mitigation and transfer tools*
- Advanced capacity countries should *build risk exposure into fiscal plans*