

FISCAL SPACE AND THE AFTERMATH OF FINANCIAL CRISES: HOW IT MATTERS AND WHY



Christina Romer and David Romer
Keynes Seminar
University of Cambridge
October 17, 2019

OVERVIEW

Third Paper in a Series

- The first derived a new measure of financial distress in 24 OECD countries for the postwar period, and looked at GDP aftermath of crises.
- The second looked at the role of policy space in explaining the variation in aftermaths.
- This paper asks *why* the fiscal response to financial distress appears to depend on the debt-to-GDP ratio.

Candidate Explanations

- Sovereign market access.
- Policymakers' choices.

Methodology

- **Statistical Tests:**
 - Run panel regressions of the fiscal response to a financial crisis including interactions with both measures of sovereign market access and fiscal space.
- **Narrative Evidence:**
 - Read the accounts of the Economist Intelligence Unit to see what knowledgeable observers believe drives the fiscal response to a crisis.

Findings

- Sovereign market access accounts for some, but far from all of the fiscal response to crises.
- Policymakers' choices appear to be quite important.
- Has implications for fiscal policy in both normal times and crisis periods.

I. PRELIMINARIES

New Measure of Financial Distress

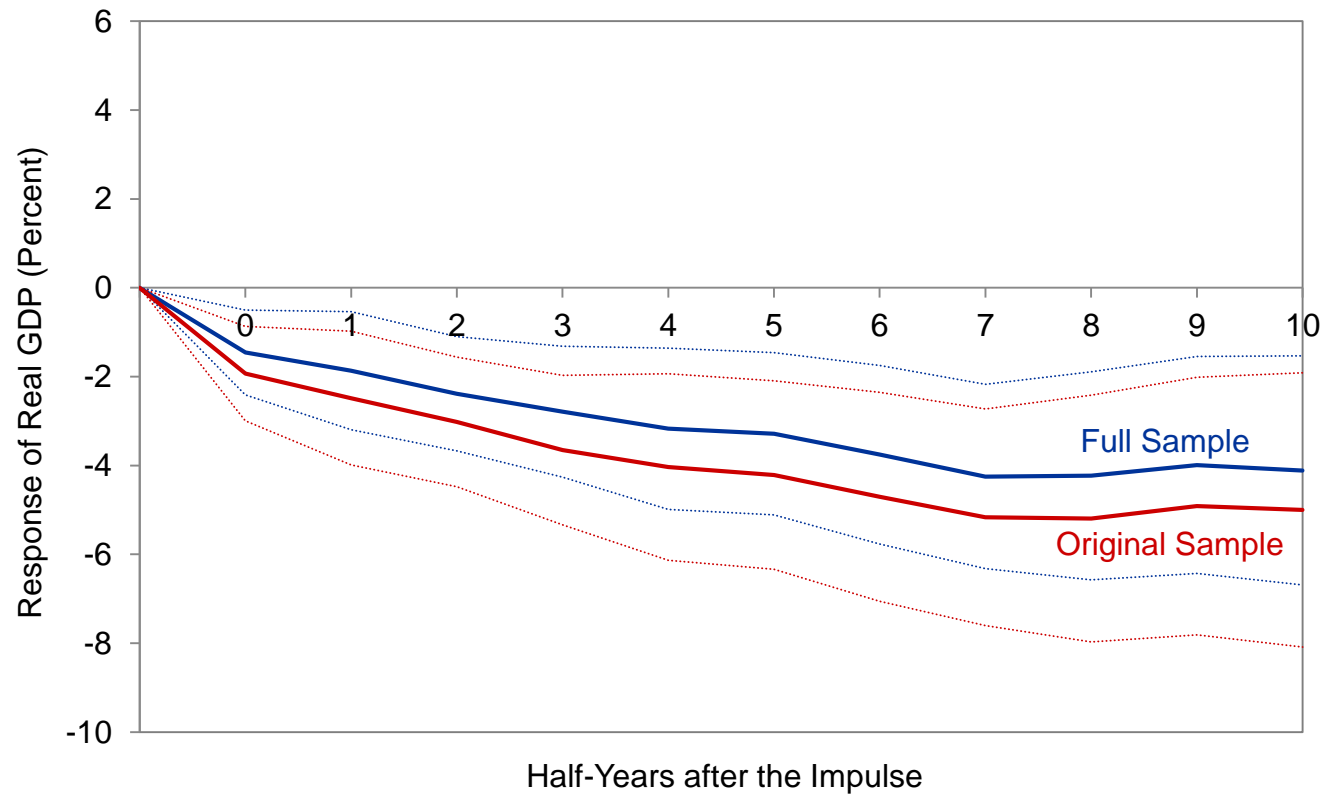
- Define financial distress as a rise in the cost of credit intermediation.
- Based on narrative sources.
- Financial distress is scaled along a continuum from 0 to 15.
- For this paper, we extend the measure to six additional countries and through 2017.

Estimating the Aftermath of Crises

$$(1) \quad y_{j,t+h} = \alpha_j^h + \gamma_t^h + \beta^h F_{j,t} + \sum_{k=1}^4 \varphi_k^h F_{j,t-k} + \sum_{k=1}^4 \theta_k^h y_{j,t-k} + e_{j,t}^h$$

- j subscripts index countries, t subscripts index time, and the h subscripts and superscripts denote the horizon (half-years after time t).
- $y_{j,t+h}$ is the logarithm of real GDP in country j at time $t+h$.
- $F_{j,t}$ is the financial distress variable for country j at time t .
- α 's are country fixed effects and γ 's are time fixed effects.

Figure 2
Behavior of Real GDP after a Financial Crisis
a. Full Sample and Original Sample



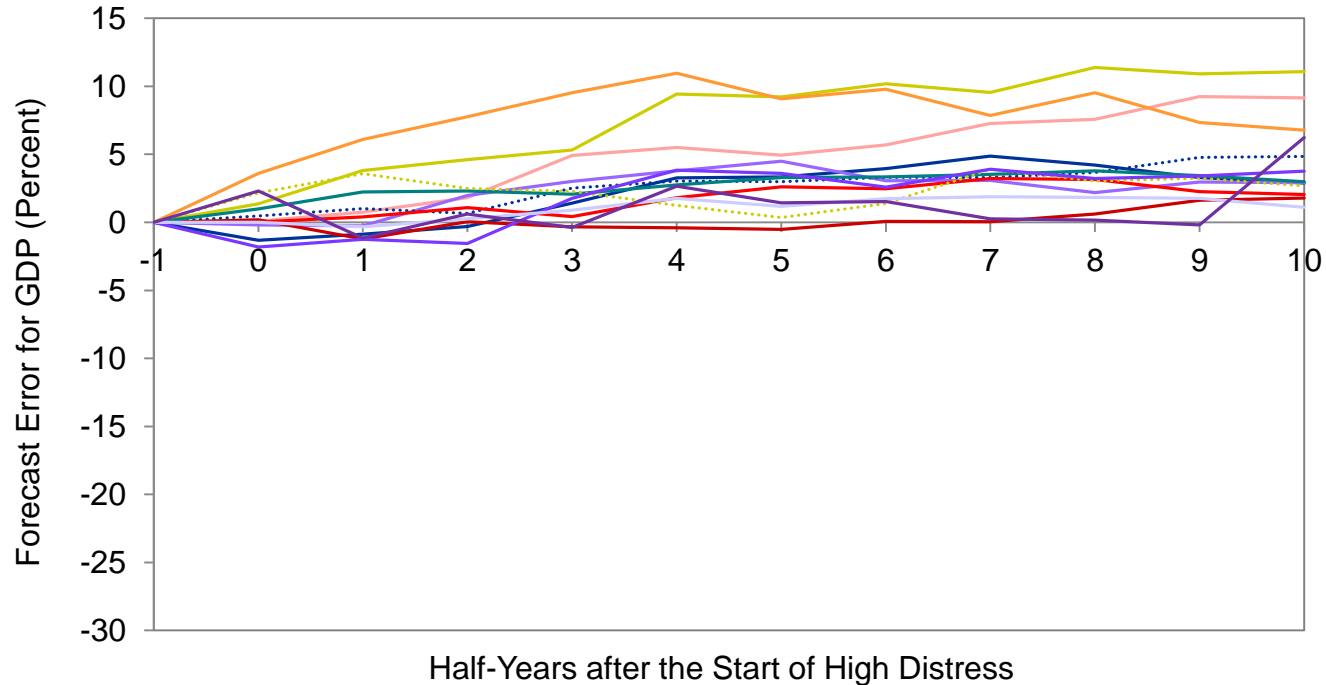
Variation in the Aftermath of Crises

- Forecast real GDP using the parameter estimates from equation (1) for each episode of high distress.
- Use actual GDP data up through the half-year before distress reached 7 or higher, and distress up through half-year it reached 7.
- Compute forecast errors (actual minus predicted).

Figure 3

GDP Forecast Errors for Episodes of High Distress

a. Cases with Positive or Small Negative Errors

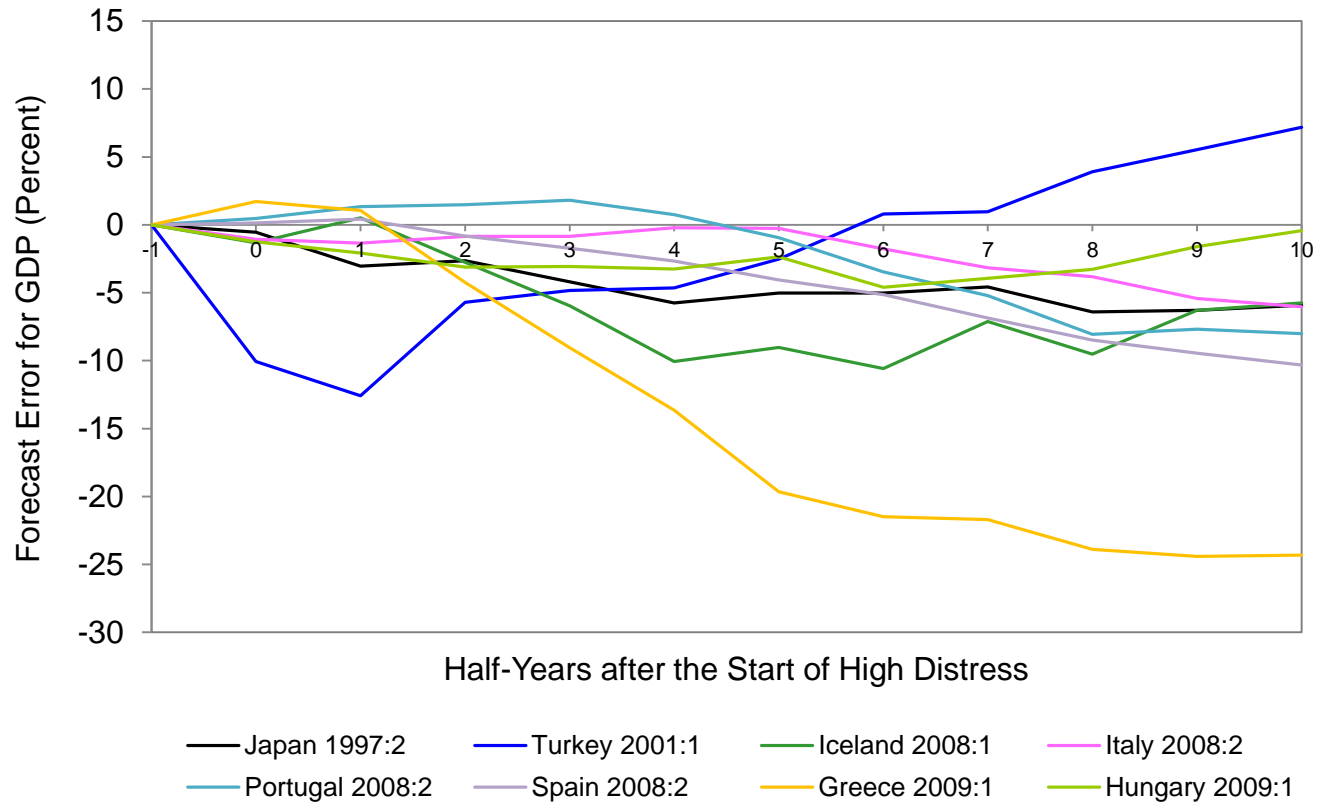


- US 1990:2
- Mexico 1996:1
- France 2008:2
- Ireland 2009:1
- Norway 1991:2
- US 2007:2
- Norway 2008:2
- Finland 1993:1
- UK 2008:1
- Sweden 2008:2
- Sweden 1993:1
- Austria 2008:2
- Denmark 2009:1

Figure 3

GDP Forecast Errors for Episodes of High Distress

b. Cases with Substantial Negative Errors



II. THE IMPORTANCE OF FISCAL SPACE

Measure of Fiscal Space

- Our baseline measure is the (negative of the) ratio of gross debt to GDP.
- We also consider variants.

Fiscal Space and the Aftermath of Distress

- Reestimate equation (1) including an interaction term between distress and the debt-to-GDP ratio (multiplied by -1) in the previous year (plus the level of the debt ratio, and lags).
- Coefficients on the interaction term show how the aftermath of distress varies with the debt ratio.
- We again consider a realization of 7 of financial distress, and consider a two-standard-deviation difference in the prior debt ratio (roughly 70 percentage points).

Figure 4

Relationship between Real GDP after a Crisis and Fiscal Space

a. Scaled Coefficient on the Interaction between Debt-to-GDP and Financial Distress

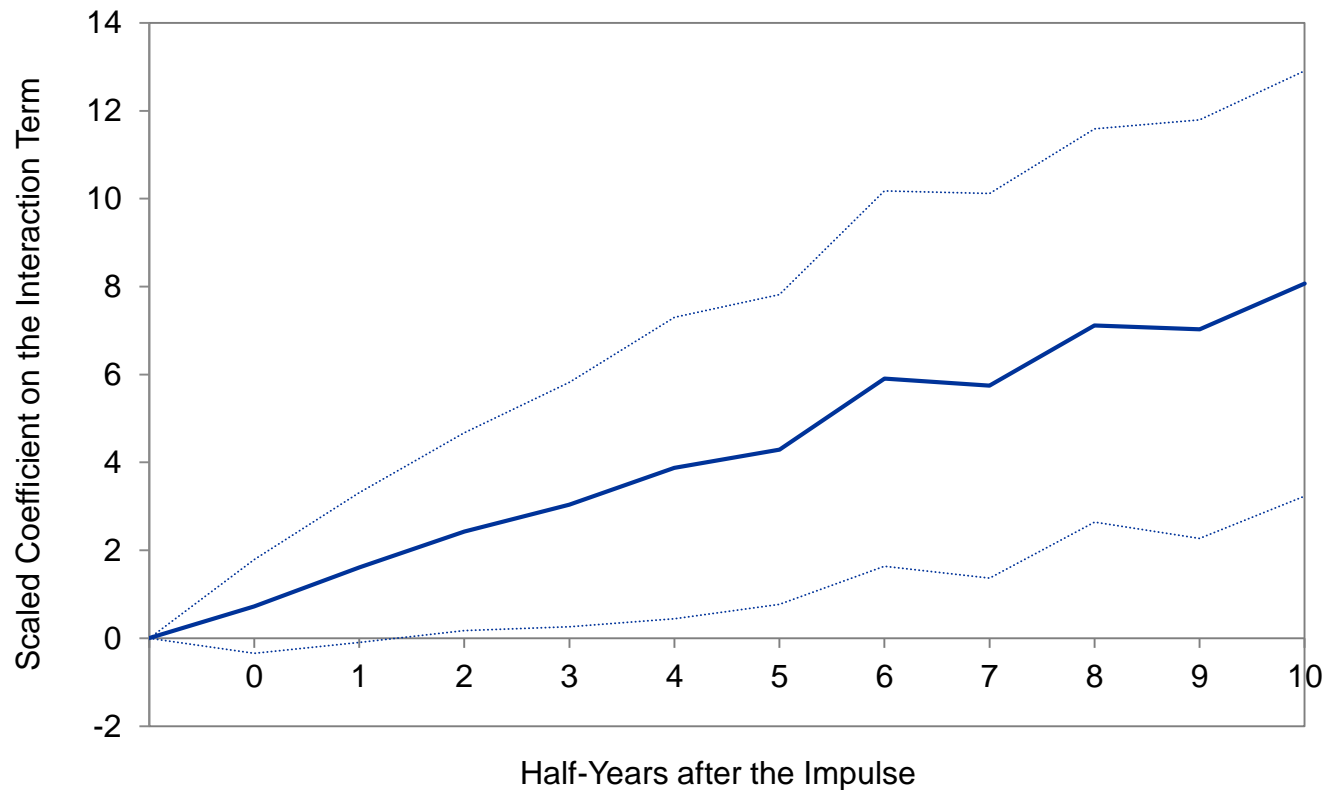
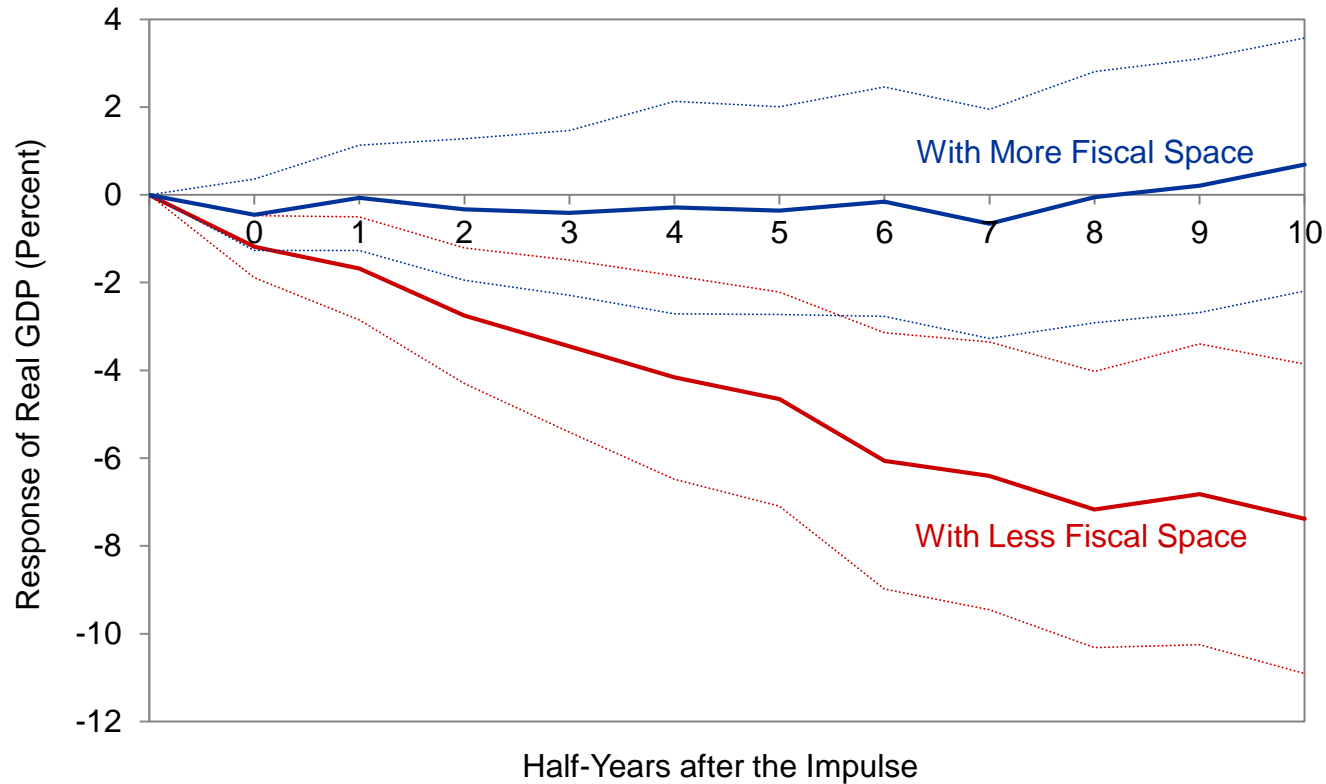


Figure 4

Relationship between Real GDP after a Crisis and Fiscal Space

b. Response of GDP with More and Less Fiscal Space



Fiscal Space and the Policy Response to Financial Distress

- Instead of looking at how the behavior of GDP following financial distress varies with the prior debt-to-GDP ratio, we ask how fiscal policy (specifically, the change in the high-employment surplus) following distress varies with the prior debt ratio.

Figure 5

Behavior of High-Employment Surplus after a Crisis Including an Interaction Effect with Fiscal Space

a. Scaled Coefficient on the Interaction Term

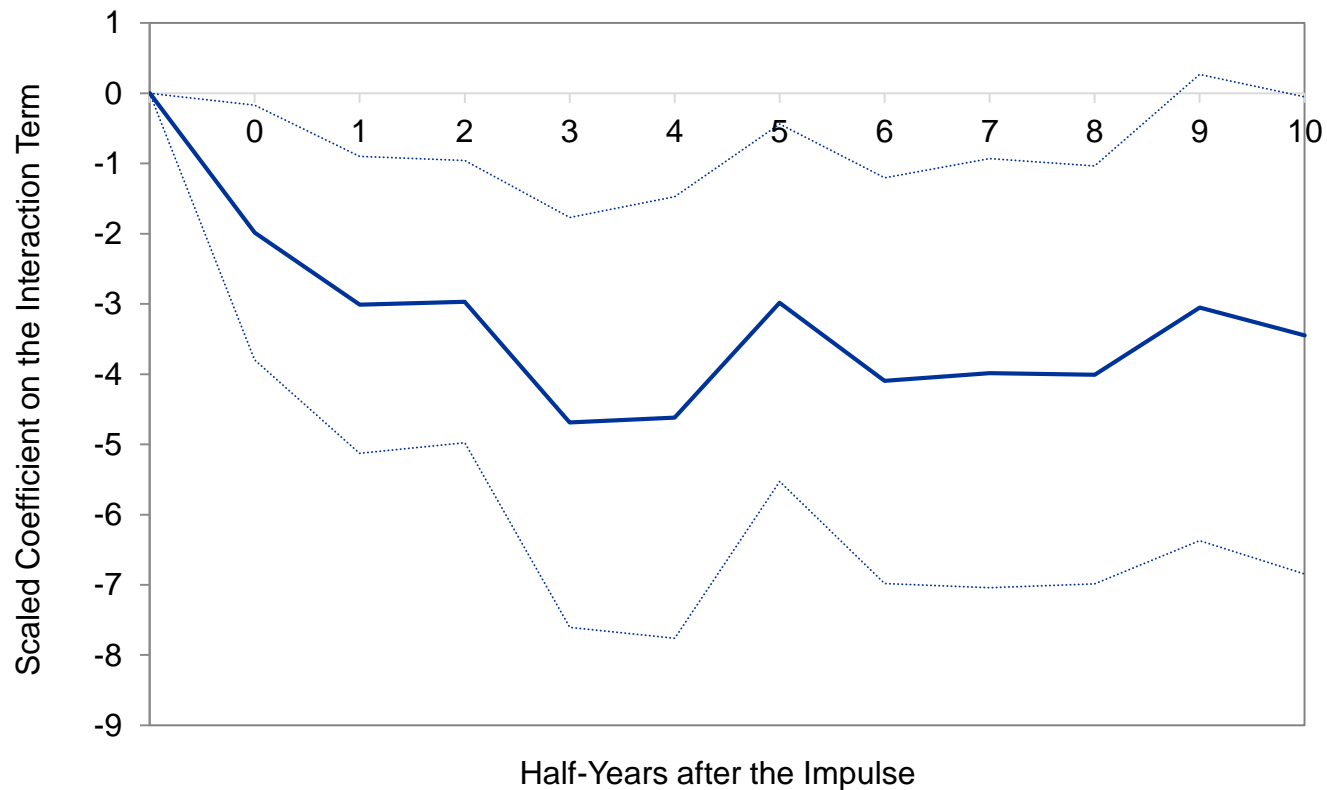
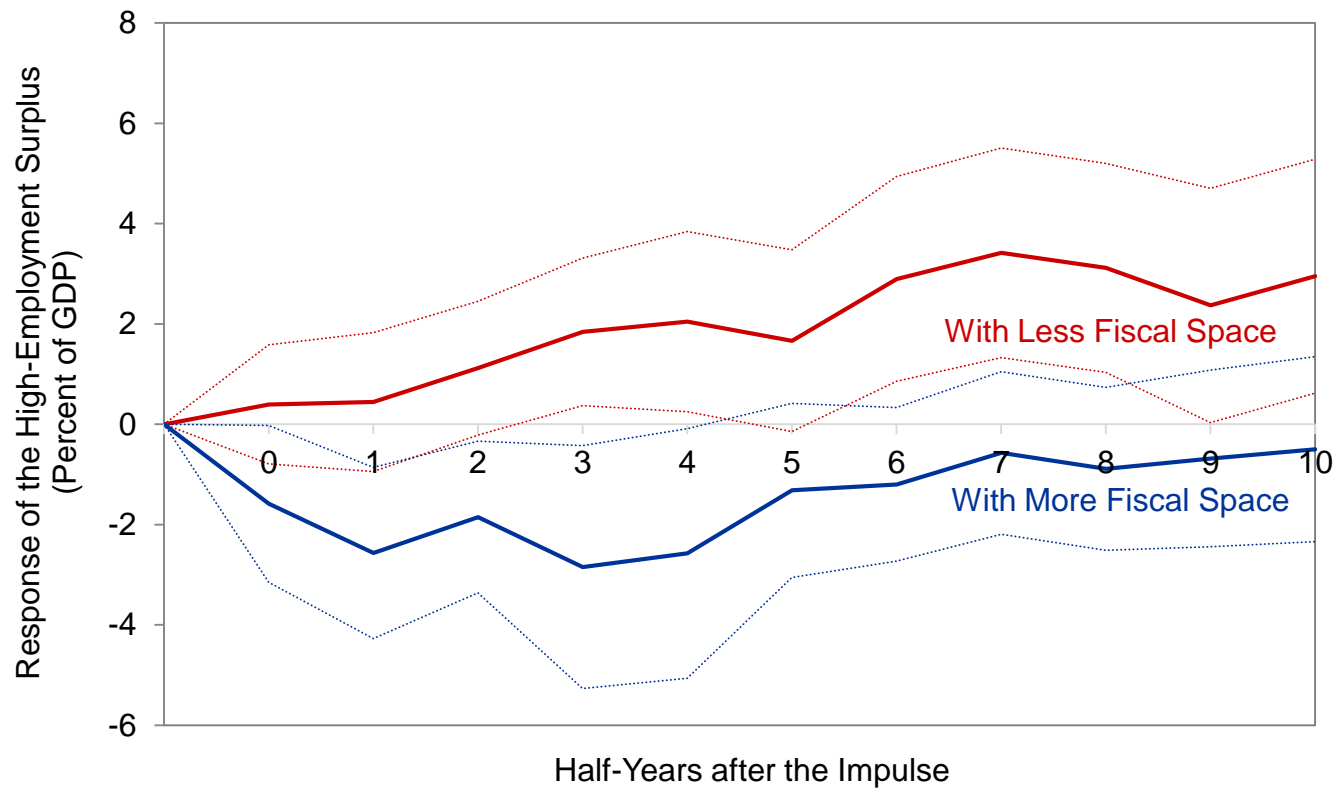


Figure 5

Behavior of High-Employment Surplus after a Crisis Including an Interaction Effect with Fiscal Space

b. Response of the HES with More and Less Fiscal Space



III. STATISTICAL EVIDENCE ON WHY FISCAL SPACE MATTERS FOR THE POLICY RESPONSE

Candidate Explanations

- Sovereign market access.
- Policymakers' choices.

Statistical Evidence

- Expand the equation for the change in the high-employment surplus to include direct measures of market access and their interaction with financial distress.
- **If market access is central:**
 - The interaction with market access should be important.
 - The impact of the debt ratio should be substantially attenuated.

Measures of Market Access

- CDS spread on government debt.
- Interest rate on 10-year government bonds.
- S&P sovereign bond rating.
- Dummy for being subject to an IMF stand-by arrangement or extended fund facility.

Is Better Market Access Associated with a More Aggressive Fiscal Response to Financial Distress?

- Instead of looking at how fiscal policy following financial distress varies with the prior debt ratio, we ask how it varies with prior market access.

Figure 8

Relationship between the HES after a Financial Crisis and Individual Direct Measures of Sovereign Market Access

a. CDS Spread

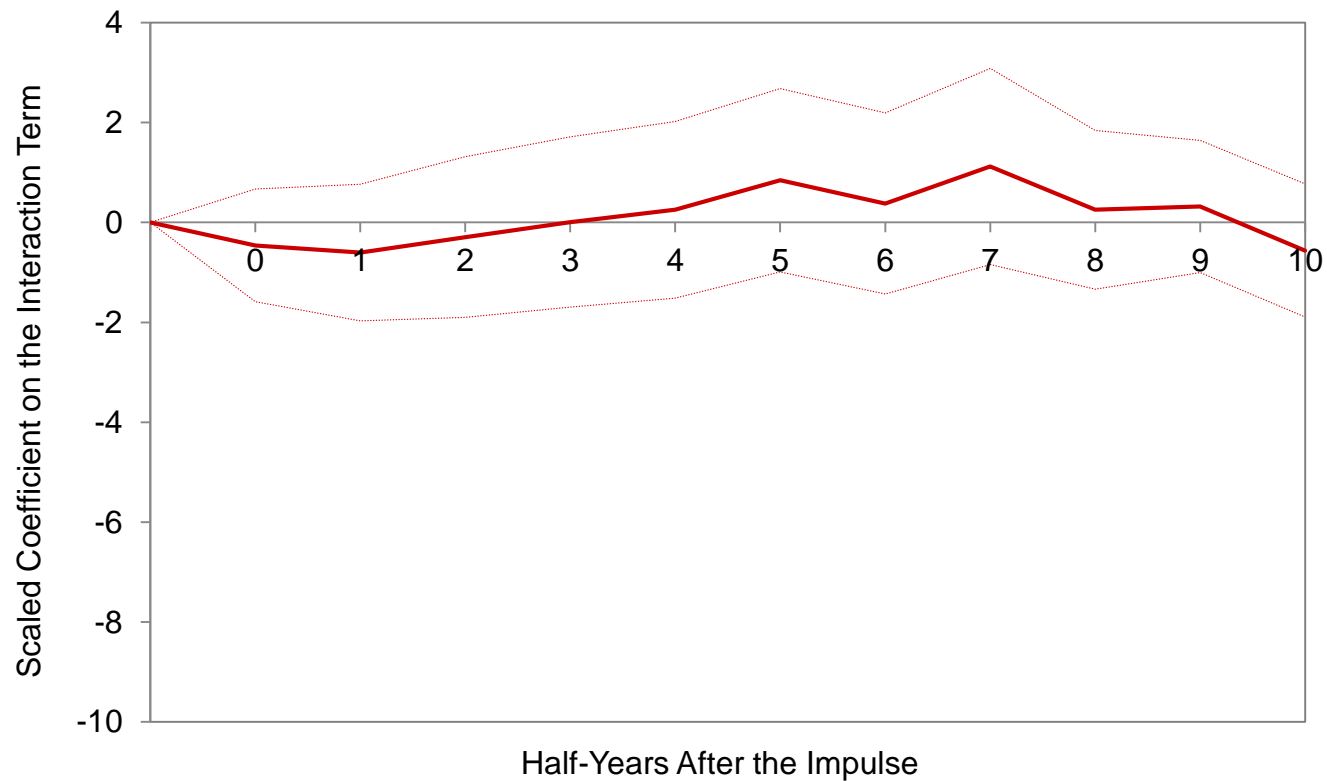


Figure 8

Relationship between the HES after a Financial Crisis and Individual Direct Measures of Sovereign Market Access

b. Long-Term Government Bond Rate

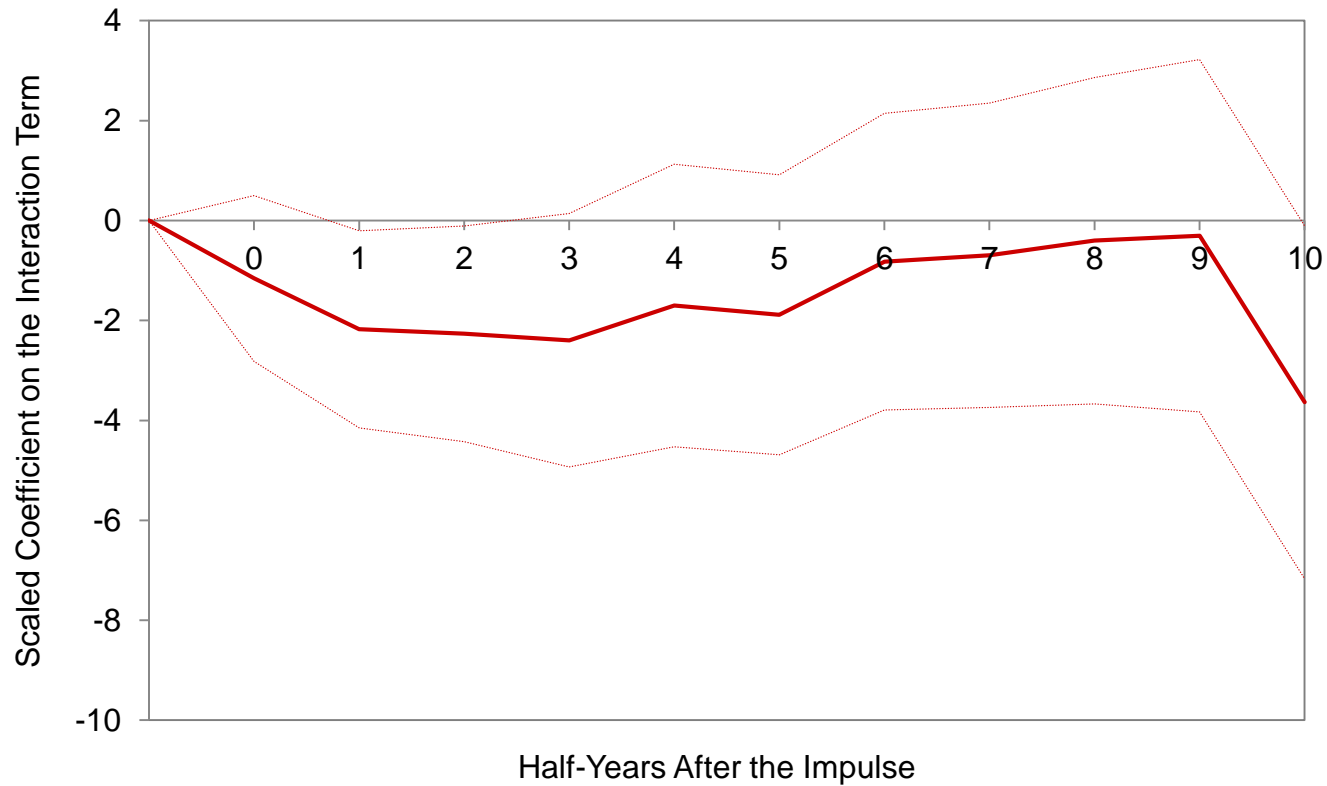


Figure 8
Relationship between the HES after a Financial Crisis and
Individual Direct Measures of Sovereign Market Access
c. S&P Rating

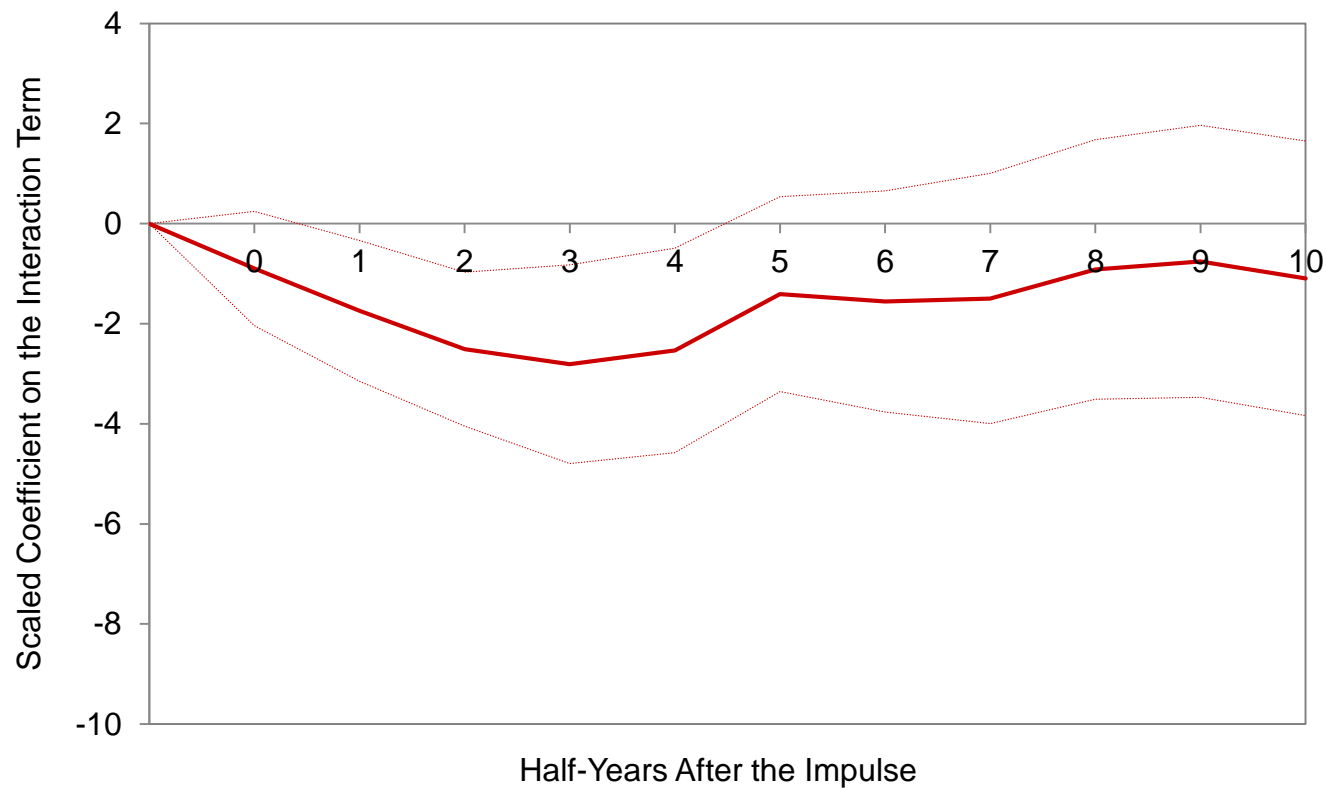


Figure 8
Relationship between the HES after a Financial Crisis and
Individual Direct Measures of Sovereign Market Access
d. IMF Program

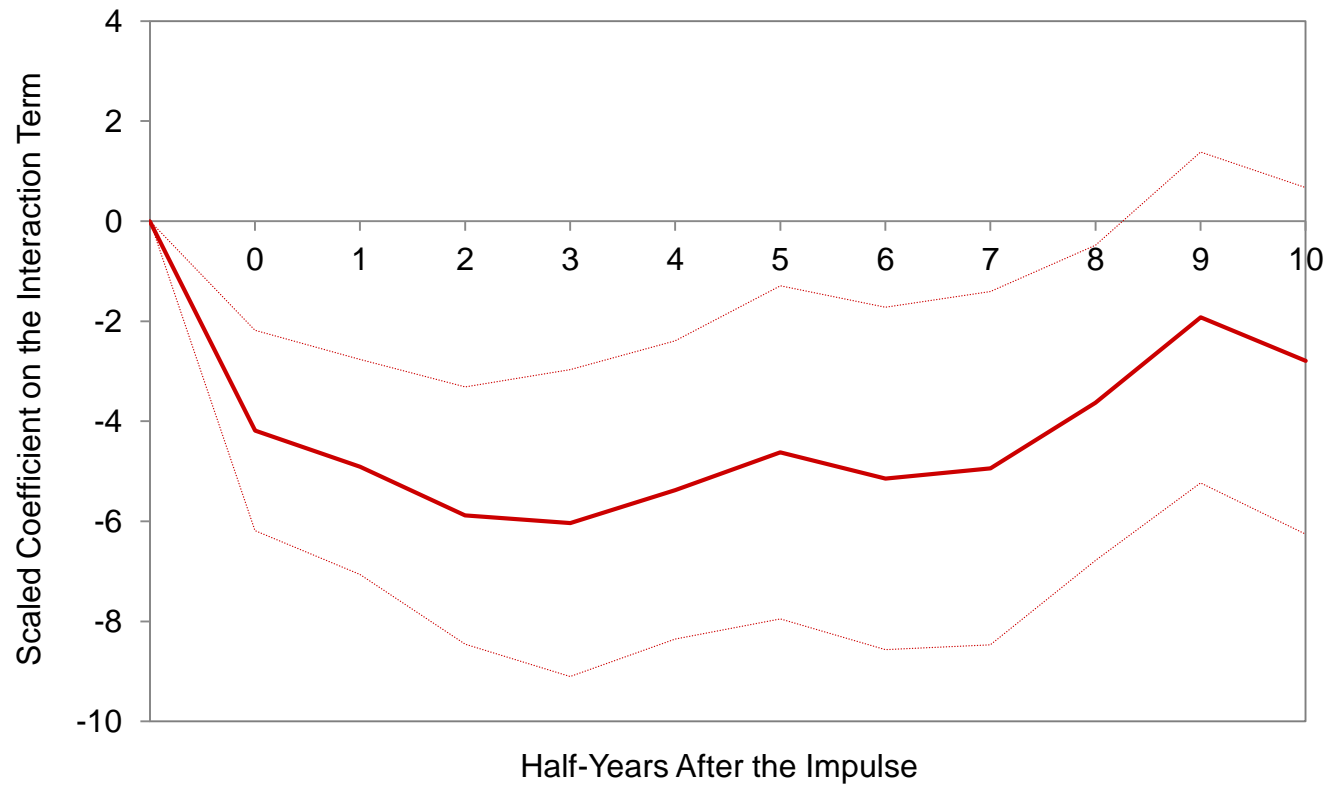
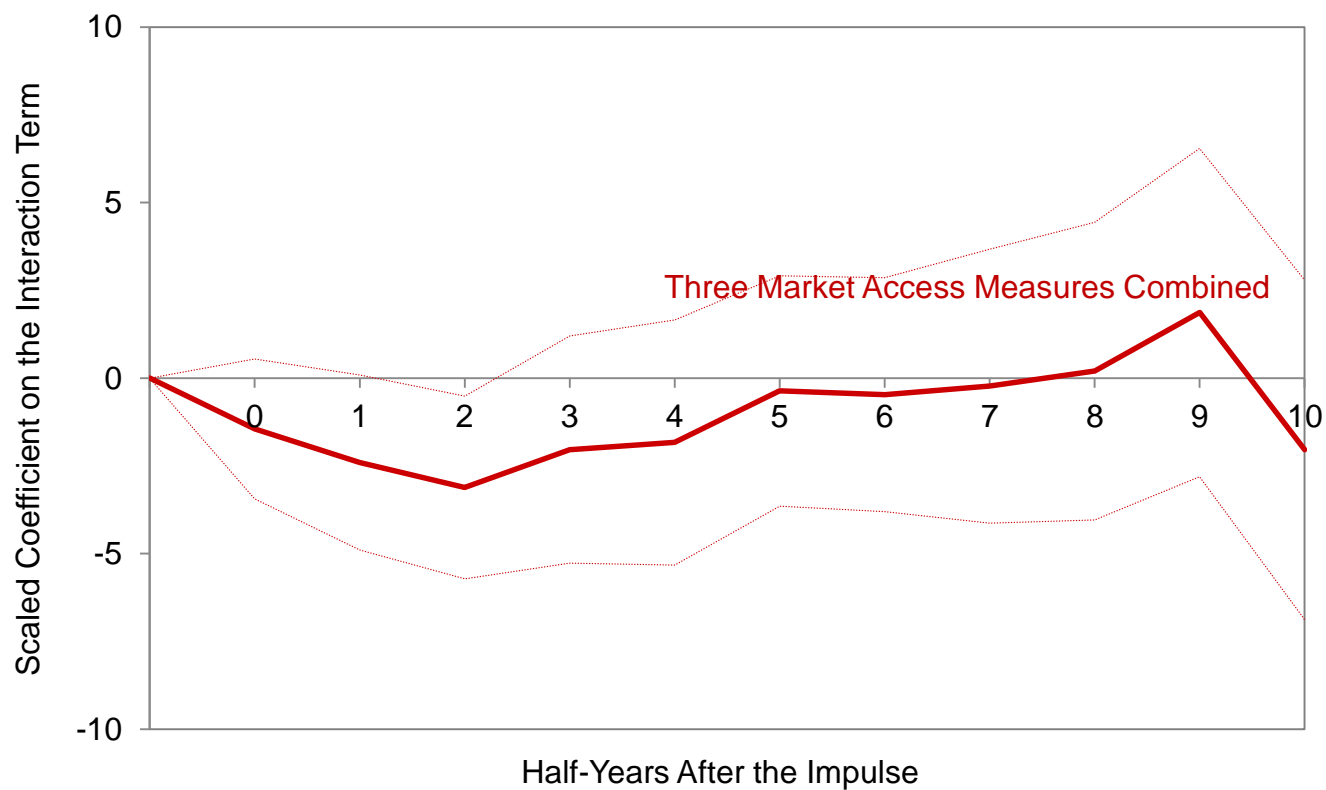


Figure 9
Relationship between the High-Employment Surplus
after a Financial Crisis and Multiple Direct Measures of Sovereign
Market Access



Does the Debt Ratio Affect the Fiscal Response through Market Access?

- Expand the equation for the change in the high-employment surplus to include **both** direct measures of market access and their interaction with financial distress **and** the debt ratio and its interaction with distress.

Figure 10

Relationship between the HES after a Financial Crisis and Both Individual Direct Measures of Market Access and Fiscal Space

b. Long-Term Government Bond Rate

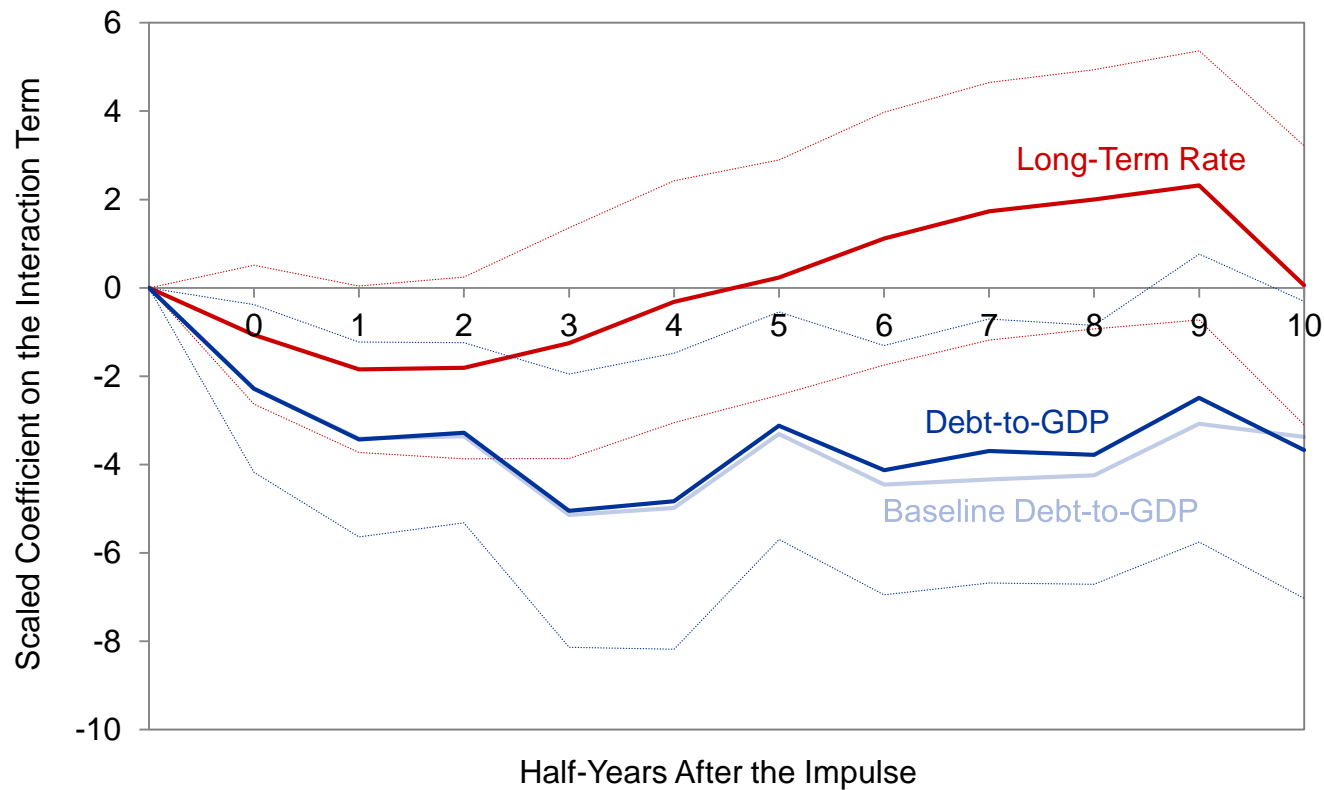


Figure 10

Relationship between the HES after a Financial Crisis and Both Individual Direct Measures of Market Access and Fiscal Space

c. S&P Rating

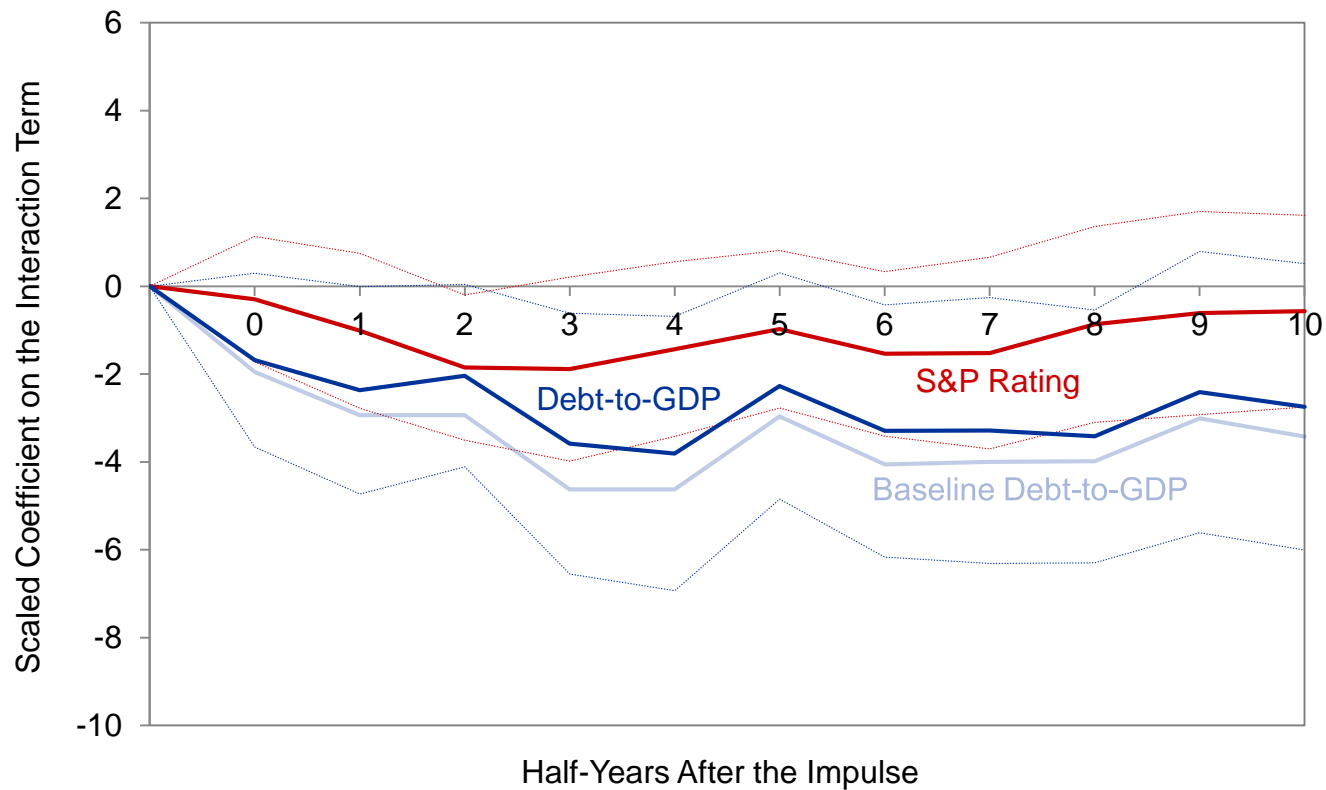


Figure 10

Relationship between the HES after a Financial Crisis and Both Individual Direct Measures of Market Access and Fiscal Space

d. IMF Program

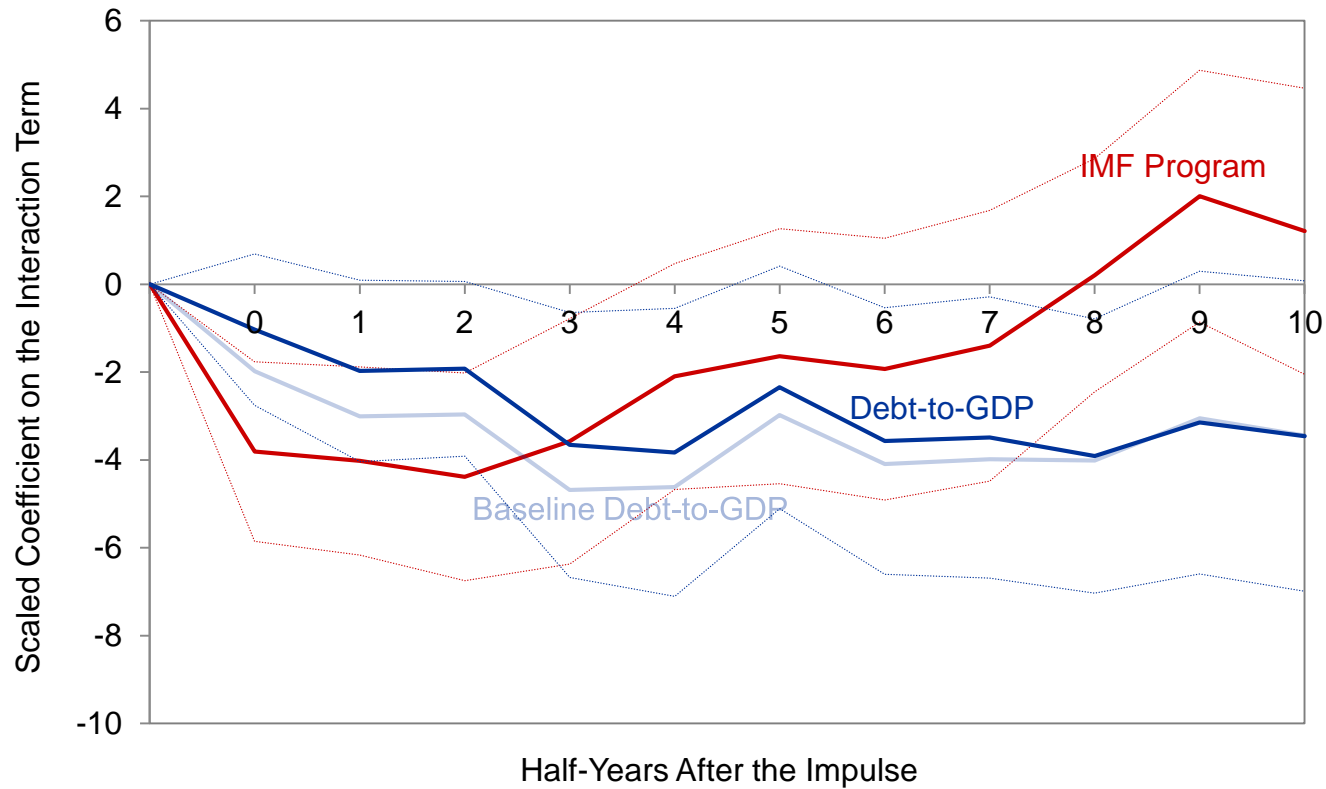
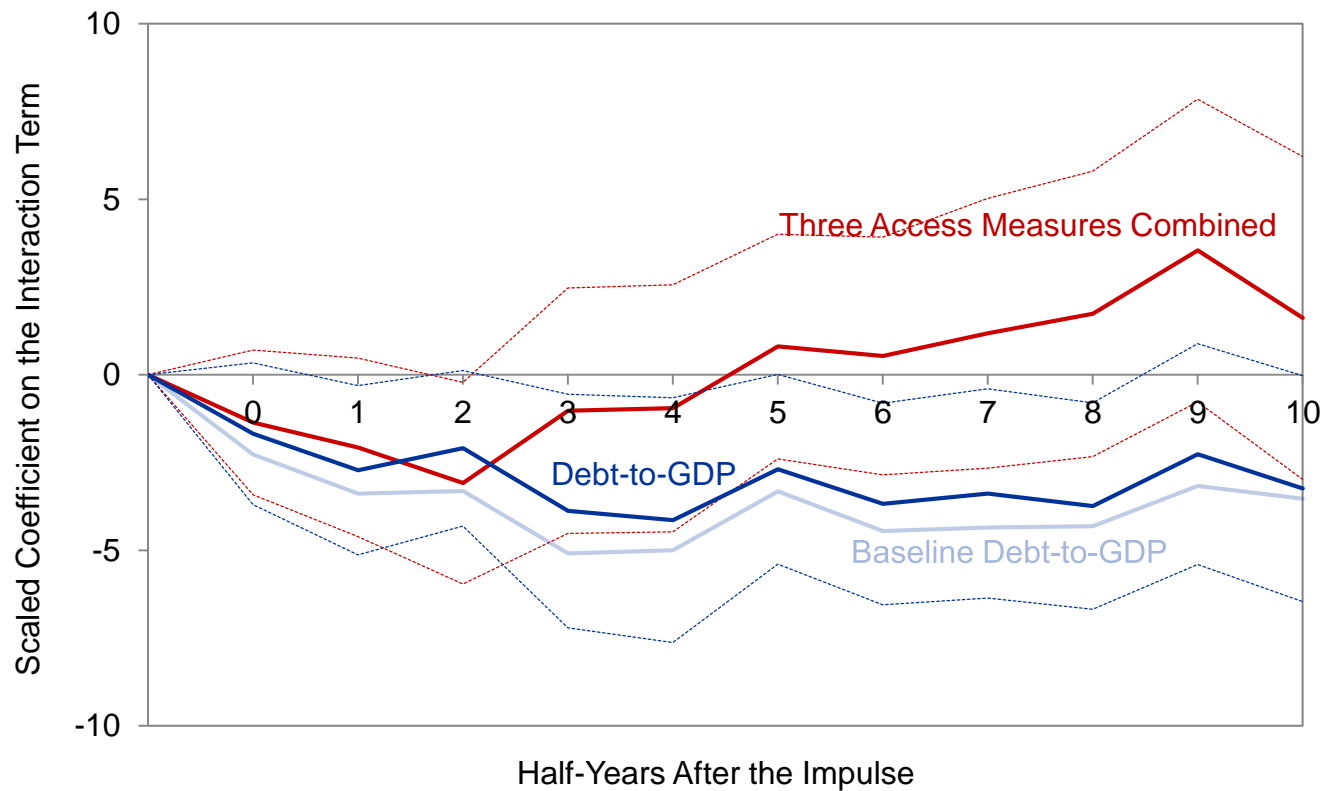


Figure 11

Relationship between the High-Employment Surplus after a Financial Crisis and Both Multiple Direct Measures of Sovereign Market Access and Fiscal Space



IV. NARRATIVE EVIDENCE ON THE MOTIVATION FOR THE FISCAL POLICY FOLLOWING CRISES

Narrative Evidence

- Economist Intelligence Unit (EIU) *Country Reports*.
- Read descriptions of the motivation for fiscal actions around 22 episodes of high financial distress.

Questions We Seek to Answer

- What is the stance of fiscal policy?
- What is the motivation for fiscal choices?
- Is debt-to-GDP ratio cited as a determinant of fiscal choices?
- Anything else of interest?

Table 3

Size and Motivations for Fiscal Expansions in Episodes of High Financial Distress

a. Size

(Date expansion is first mentioned in parentheses)

Small

U.S. (1992Q1)
Norway (1991Q4)
Korea (1999Q1)
Austria (2009M1)
France (2009M1)
Italy (2009M1)
Norway (2009M1)
Portugal (2009M1)
Spain (2009M1)
Sweden (2009M1)
Denmark (2009M7)
Greece (2009M7)

Large

Finland (1993Q1)
Sweden (1993Q2)
Japan (1998Q1)
Turkey (2001M7)
U.S. (2008M7)
Iceland (2009M1)
U.K. (2009M1)
Ireland (2009M7)

Table 3

Size and Motivations for Fiscal Expansions in Episodes of High Financial Distress

b. Motivations

(Date motivation is first mentioned in parentheses)

<u>Financial Rescue</u>	<u>Countercyclical</u>	<u>Politics</u>
U.S. (1992Q1)	U.S. (1992Q1)	
Norway (1991Q4)	Norway (1991Q4)	Norway (1993Q1)
Finland (1993Q1)		
Sweden (1993Q2)		
Japan (1998Q1)	Japan (1998Q1)	Japan (1998Q1)
Korea (1999Q1)	Korea (1999Q1)	Korea (1999Q3)
Turkey (2001M7)		
U.S. (2009M1)	U.S. (2008M7)	
Iceland (2009M1)		
U.K. (2009M1)	U.K. (2009M1)	
Austria (2009M1)	Austria (2009M1)	
France (2009M1)	France (2009M1)	
Italy (2009M1)	Italy (2009M1)	
Norway (2009M1)	Norway (2009M1)	
Portugal (2009M1)	Portugal (2009M1)	Portugal (2009M1)
Spain (2009M1)	Spain (2009M1)	
Sweden (2009M1)	Sweden (2009M1)	
Denmark (2009M7)	Denmark (2009M7)	
Greece (2009M7)		
Ireland (2009M7)		

Table 4

Size and Motivations for Fiscal Austerity in Episodes of High Financial Distress

a. Size

(Date austerity is first mentioned in parentheses)

Small

U.S. (1991Q1)
Norway (1994Q3)
Korea (1998Q1)
U.S. (2011M7)
France (2010M7)
Denmark (2010M7)

Large

Finland (1993Q3)
Sweden (1994Q2)
Mexico (1996Q3)
Turkey (2002M1)
Iceland (2009M7)
U.K. (2010M7)
Austria (2010M7)
Italy (2010M7)
Portugal (2010M7)
Spain (2010M1)
Greece (2010M1)
Hungary (2009M7)
Ireland (2010M1)

Table 4

Size and Motivations for Fiscal Austerity in Episodes of High Financial Distress

b. Motivations

(Date motivation is first mentioned in parentheses)

<u>Market Access</u>	<u>Conditionality</u>	<u>Ideas</u>	<u>EU Rules</u>	<u>Countercyclical</u>
		U.S. (1991Q1)		Norway (1994Q3)
Finland (1994Q3)		Norway (1994Q3)	Finland (1995Q1)	
Sweden (1995Q1)		Finland (1993Q3)	Sweden (1994Q3)	
Mexico (1996Q3)	Mexico (1996Q3)	Sweden (1994Q2)		
Korea (1998Q1)	Korea (1998Q1)		Turkey (2005M1)	
Turkey (2002M1)	Turkey (2002M1)			
		U.S. (2011M7)		
Iceland (2010M1)	Iceland (2009M7)	Iceland (2010M1)		
U.K. (2010M7)		U.K. (2010M7)		
		Austria (2010M7)	Austria (2010M7)	
France (2010M7)		France (2010M7)	France (2010M7)	
Italy (2010M7)			Italy (2011M1)	
Portugal (2010M7)	Portugal (2011M7)	Portugal (2012M1)	Portugal (2010M7)	
Spain (2010M1)		Spain (2010M1)	Spain (2011M1)	
		Denmark (2010M7)	Denmark (2011M1)	Denmark (2012M7)
Greece (2010M1)	Greece (2010M7)		Greece (2010M1)	
Hungary (2009M7)	Hungary (2009M7)	Hungary (2009M7)	Hungary (2009M7)	
Ireland (2010M1)	Ireland (2011M1)			

Table 5

Narrative Evidence on the Role of Debt in Fostering Austerity or Limiting Expansion in Episodes of High Financial Distress

(Date motivation is first mentioned in parentheses)

<u>Via Market Access</u>	<u>Via Conditionality</u>	<u>Via Ideas</u>	<u>Via EU Rules</u>
Sweden (1996Q3)		U.S. (1991Q3) Finland (1993Q3) Sweden (1994Q3) Japan (2000M6)	Finland (1995Q1) Sweden (1996Q3)
Turkey (2003M7)	Turkey (2002M1)		
France (2011M1) Italy (2009M7)		U.S. (2011M7) Iceland (2009M1) U.K. (2010M7) Austria (2010M1) France (2010M1)	Italy (2011M1)
Spain (2010M7)	Portugal (2011M7)		
Greece (2009M7) Hungary (2010M1)	Greece (2010M7) Hungary (2011M7)	Denmark (2009M7)	

V. CONCLUSIONS AND POLICY IMPLICATIONS

Summary

- A country's fiscal response to a financial crisis (and the subsequent aftermath) is strongly correlated with its prior debt-to-GDP ratio.
- Statistical evidence shows that the debt ratio does not matter simply or primarily through sovereign market access. Suggests policymaker choices are important.
- Narrative evidence suggests a larger role for market access, but policymaker ideas and EU rules are also central.

Possible Implications for Policy

- Countries should maintain a low debt ratio as insurance against market access problems and counterproductive fiscal policy choices.
- Policymakers faced with a crisis should not let debt ratio drive their fiscal actions unnecessarily.
- The best strategy is to follow both policy prescriptions.



Figure 2
Behavior of Real GDP after a Financial Crisis
b. Countries Richer and Poorer than Greece

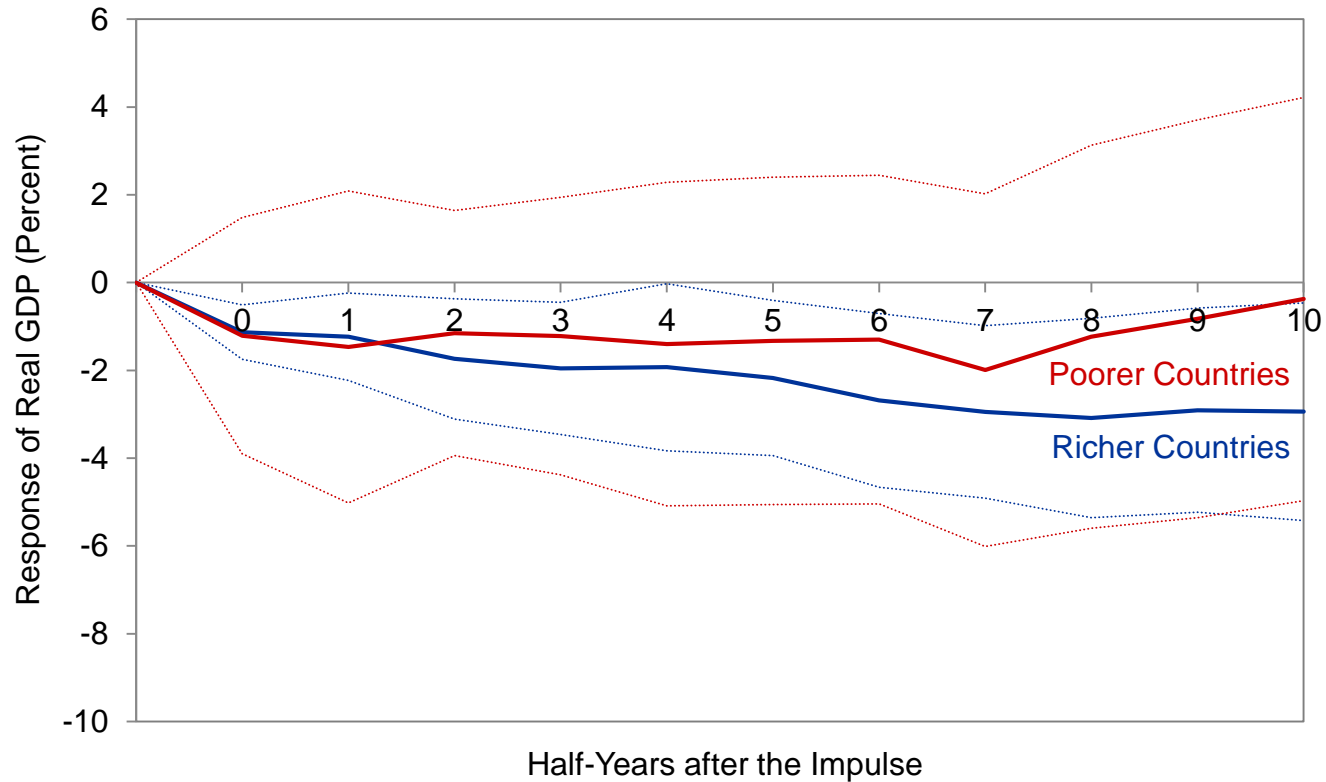


Table 6

The Relationship between the EIU's Assessments of the Fiscal Response to a Crisis and Data on the Prior Debt Ratio

<u>EIU Description</u>	<u>Average Debt Ratio, %</u>
Size of Expansion:	
None	71 (1)
Small	55 (12)
Large	49 (8)
Motivation for Expansion:	
Financial rescue	52 (19)
Countercyclical	55 (14)
Politics	57 (5)
Size of Austerity:	
None	63 (3)
Small	57 (6)
Large	68 (12)
Motivation for Austerity:	
Market access	66 (13)
Conditionality	68 (7)
Domestic ideas	65 (13)
EU Rules	74 (11)
Countercyclical	49 (2)
Role of Debt:	
No role mentioned	26 (3)
Fostered expansion	44 (2)
Fostered austerity via:	
Market access	80 (7)
Conditionality	87 (4)
Domestic ideas	66 (10)
EU rules	78 (3)
