BANK FOR INTERNATIONAL SETTLEMENTS

Monetary policy considerations in a world of high government debt

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Introduction

Higher uncertainty about debt sustainability…affects all decisions. I am struck at how limited our understanding is of these channels. Reduced form regressions of growth on debt can take us only so far…When debt is very high, it may not take much of a change of heart by investors to move from the good to the bad equilibrium.

Olivier Blanchard (2013)

Introduction

- Do we need another paper on government debt?
- Massive increase in debt in some parts of the world
- Sustainability and financial fragility issues inevitable
- What about monetary policy implications?
  - Tail risks
  - Global spillovers
  - Adequacy of conventional Taylor-type rules questioned

'New normal': MP framework refinements – not major reforms

Some key facts

- Total global debt growing rapidly
  - Household
  - Non-financial corporate
  - **Government**

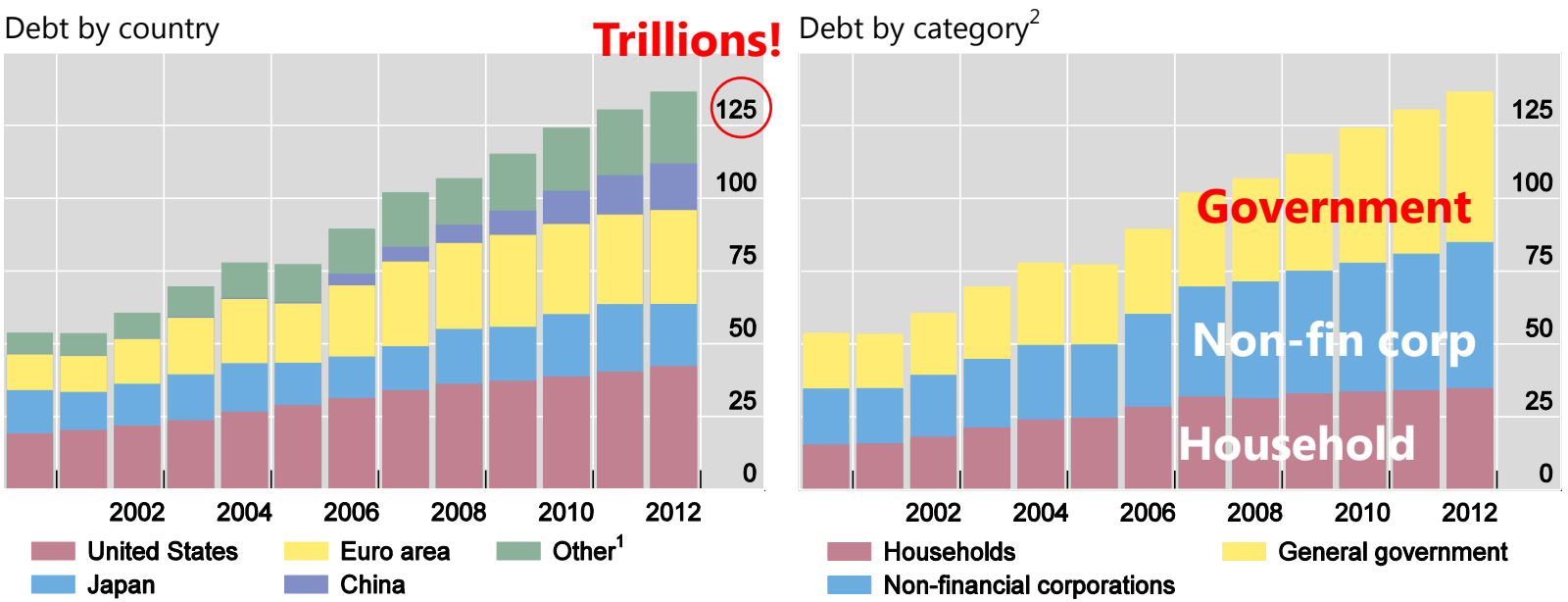
- Troubles only in the major advanced economies?

- Two points to keep in mind
  - Appearance of sound fiscal positions can change quickly!
  - Are we fighting the last battle?

Worrisome global debt trends – up, up and away!

Global debt trends

Total debt, in trillion USD — Graph II.1



[1] Sum of total debt for Argentina, Australia, Brazil, Canada, India, Indonesia, Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey and United Kingdom. [2] Total of economies listed in left hand panel.

Sources: IMF *World Economic Outlook*; OECD; national data.

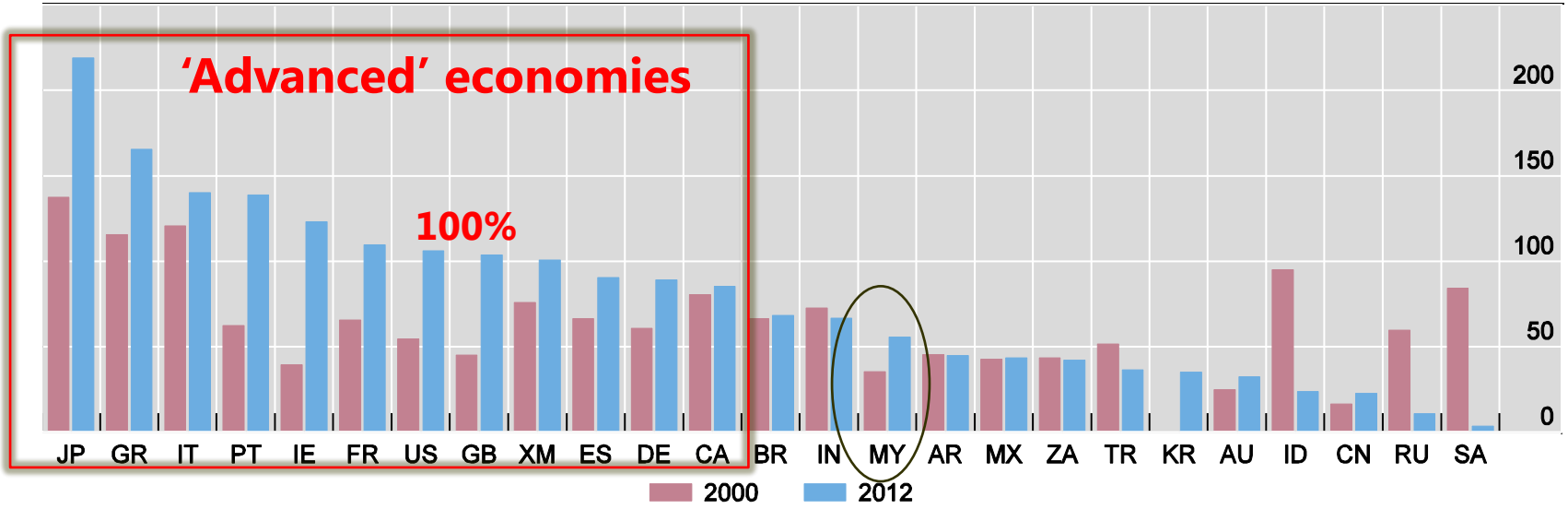
A trillion here, a trillion there…

An advanced economy problem?

Government debt

As a percentage of GDP

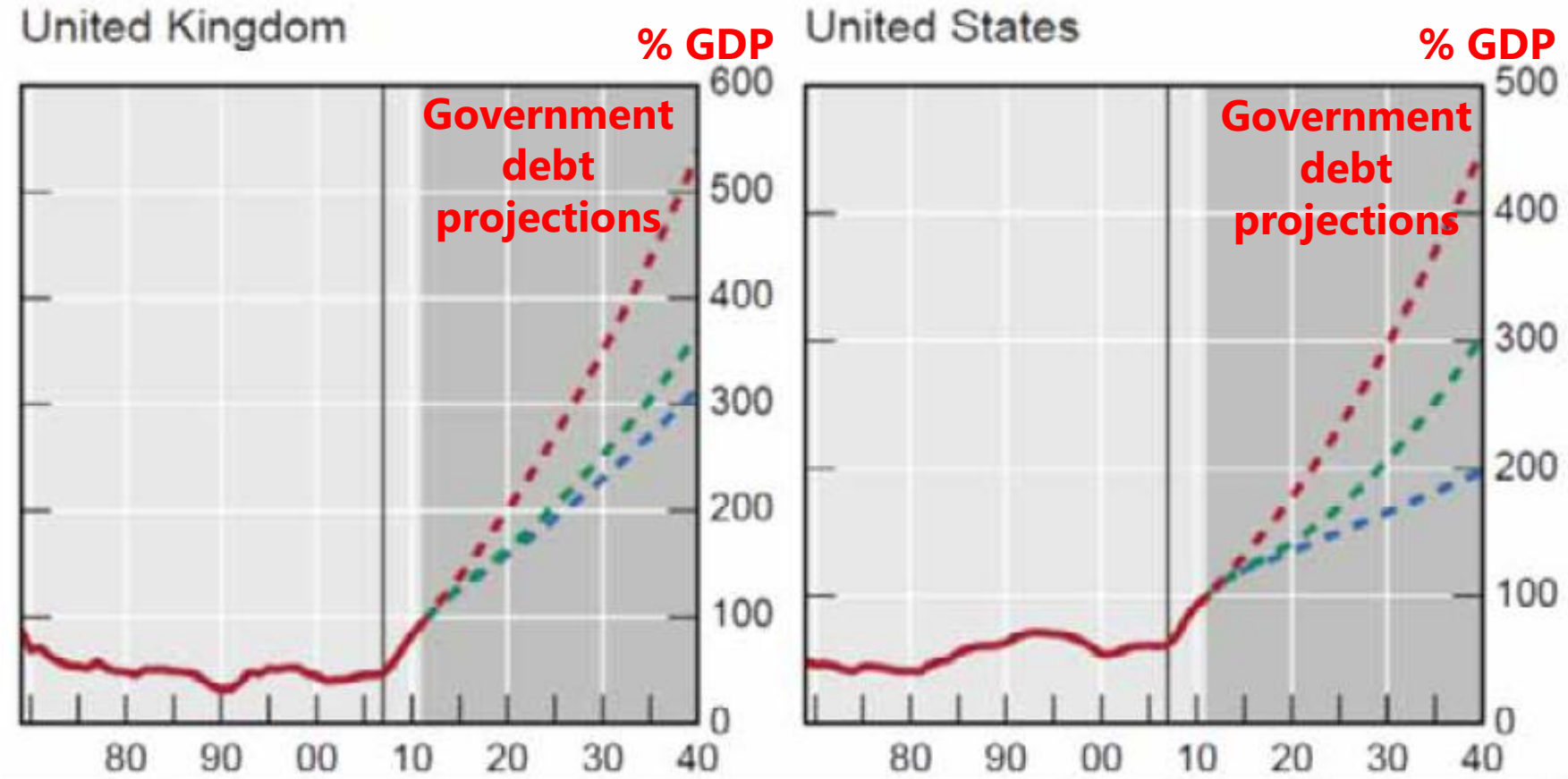
Graph II.2



AR = Argentina; AU = Australia; BR = Brazil; CA = Canada; CN = China; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; GR = Greece; ID = Indonesia; IE = Ireland; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; MY = Malaysia; PT = Portugal; RU = Russia; SA = Saudi Arabia; TR = Turkey; US = United States; XM = Euro area; ZA = South Africa.

Sources: IMF, *World Economic Outlook*; OECD.

The future is grim without meaningful consolidation



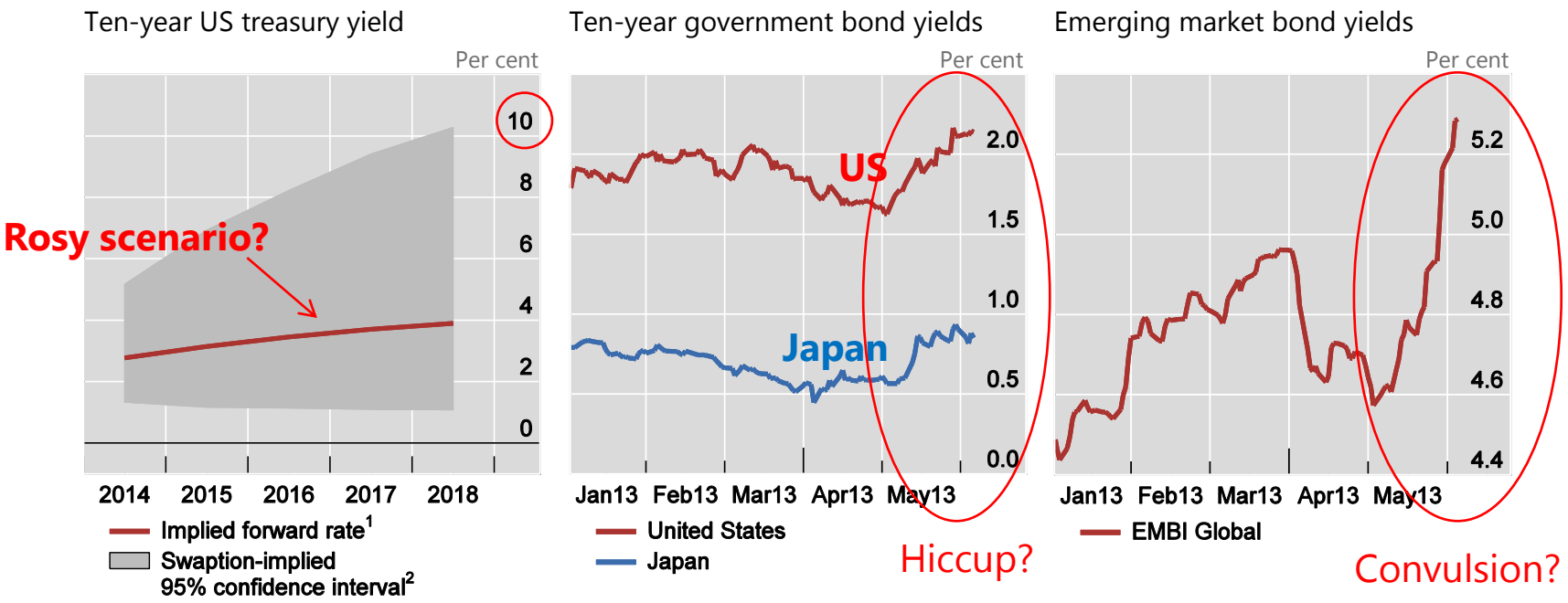
We were once worried about government debt going away!

Interest rate risks should not be underappreciated

International bond yields

In per cent

Graph II.6



[1] Derived from the US dollar-denominated swap curve for one to five years ahead; plotting interval of one year. [2] Derived from the term structure of swaptions on 10-year swap rates with expiration in one to five years; plotting interval of one year.

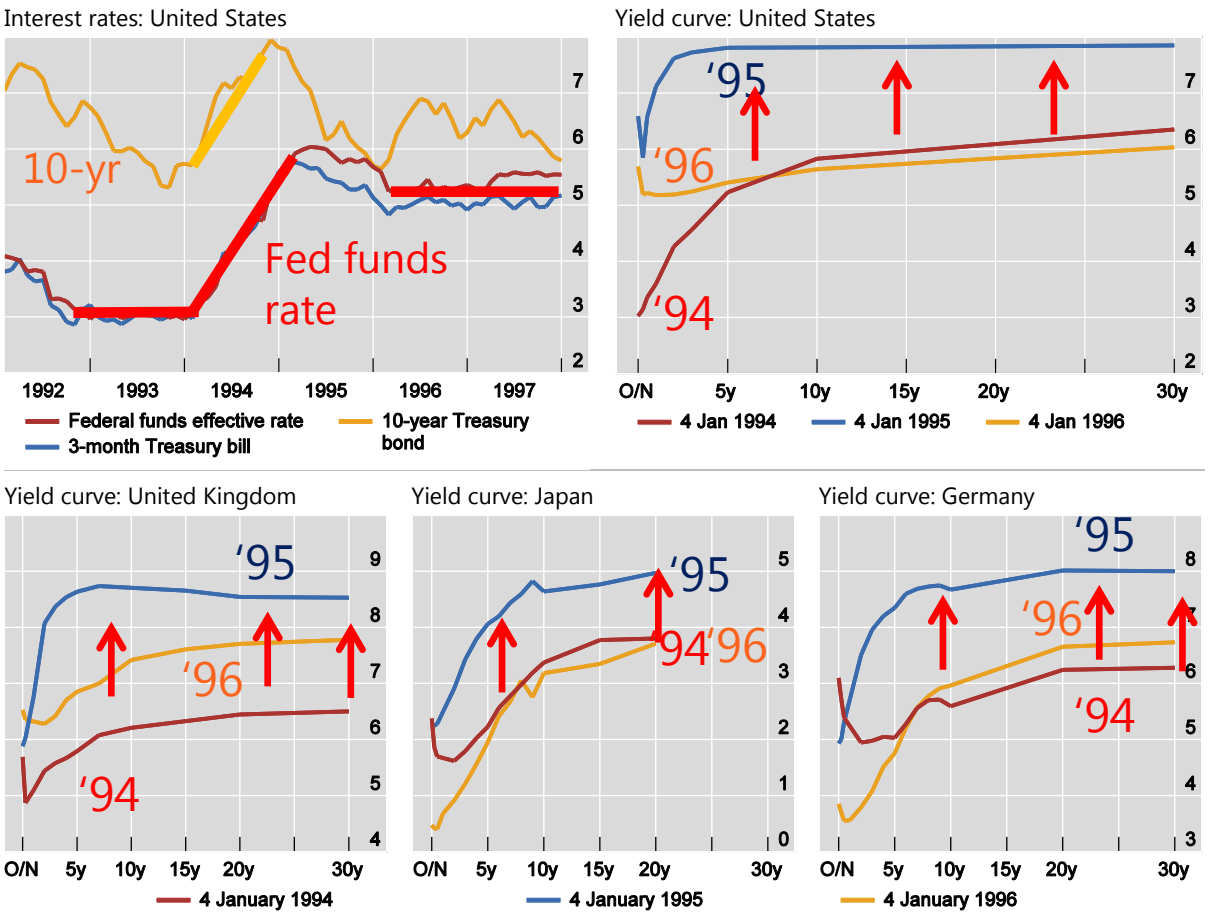
Sources: Bloomberg; Datastream; BIS calculations.

Global bond market crash of 1994 – a cautionary tale

US policy rate normalisation and international yield curves in the 1990s

In per cent

Graph II.9



Sources: Bloomberg; Datastream; national data.

Model

Monetary policy model with low and high debt

- Macro block
- Asset price block
- Debt block
- Monetary policy block

Macro block

Output and inflation dynamics

Region US

$$(IS_{US}) \quad y_{t,US} = -\gamma_{US}\, r_{t-1,US} + \theta_{US}\, y_{t-1,US} + \varphi_{US}(\pi_{A,t-1,US} - \pi_{t-1,US}) + \psi_y^{US}\mathbf{Z}_{t-1} + \varepsilon_{t,US}$$

$$(PC_{US}) \quad \pi_{t,US} = \pi_{t-1,US} + \alpha_{US}\, y_{t-1,US} + \beta_{US}\, \pi_{NF,t-1,US} + \psi_\pi^{US}\mathbf{Z}_{t-1} + \eta_{t,US}$$

Region A

$$(IS_A) \quad y_{t,A} = -\gamma_A r_{t-1,A} + \theta_A\, y_{t-1,A} + \theta_{A,US} y_{t-1,US} + \varphi_A(\pi_{A,t-1,A} - \pi_{t-1,A}) + \psi_y^{A}\mathbf{Z}_{t-1} + \varepsilon_{t,A}$$

$$(PC_A) \quad \pi_{t,A} = \pi_{t-1,A} + \alpha_A\, y_{t-1,A} + \beta_A\, \pi_{NF,t-1,A} + \psi_\pi^{A}\mathbf{Z}_{t-1} + \eta_{t,A}$$

Asset price block

Asset yields dynamics based on fundamentals

$$(F_{US}) \qquad \pi_{F,t,US} = \pi_{t-1,US} + \lambda\, y_{t-1,US} + \nu_{t,US}$$

Asset yields dynamics based on non-fundamentals

$$(NF) \quad \pi_{NF,t,k} = \zeta_t(y_{t-1,k}, r_{t-1,k}, \tilde{D}_{t-1,k}(D_{t-1,k})) \text{ for } k = \{US, A\}.$$

Asset price block

3-state Markov transition probabilities

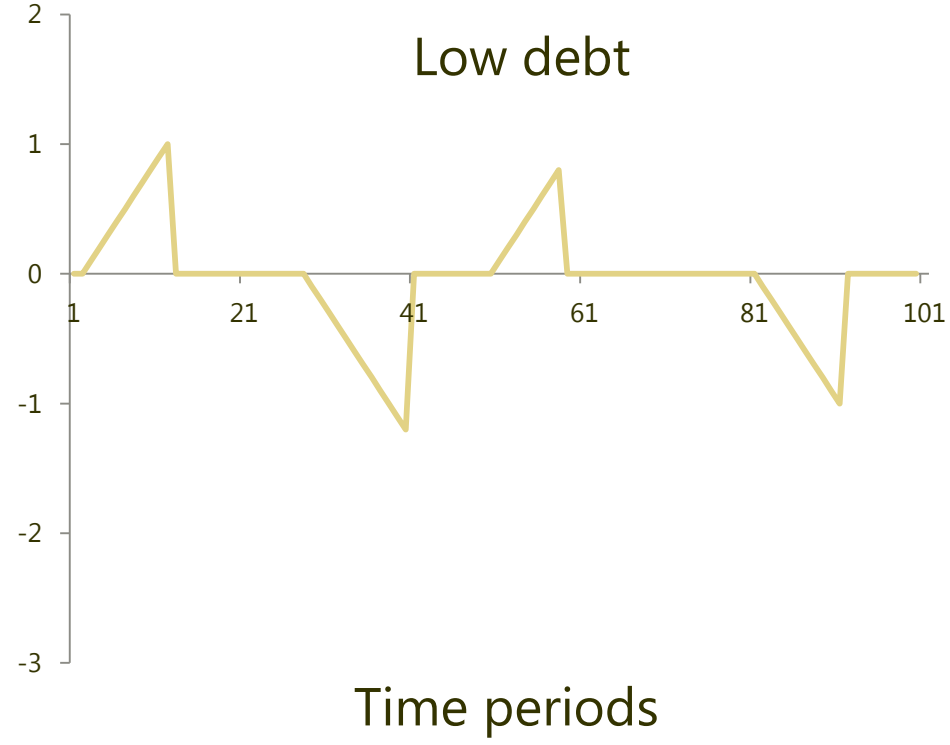
$$P(I_{t,k} \mid I_{t-1,k}, X_{t-1,k}) = \begin{pmatrix} p_{-1,-1}(X_{t-1,k}) & p_{-1,0}(X_{t-1,k}) & 0 \\ p_{0,-1}(X_{t-1,k}) & p_{0,0}(X_{t-1,k}) & p_{0,1}(X_{t-1,k}) \\ 0 & p_{1,0}(X_{t-1,k}) & p_{1,1}(X_{t-1,k}) \end{pmatrix} \text{ for } k = \{US, A\}.$$

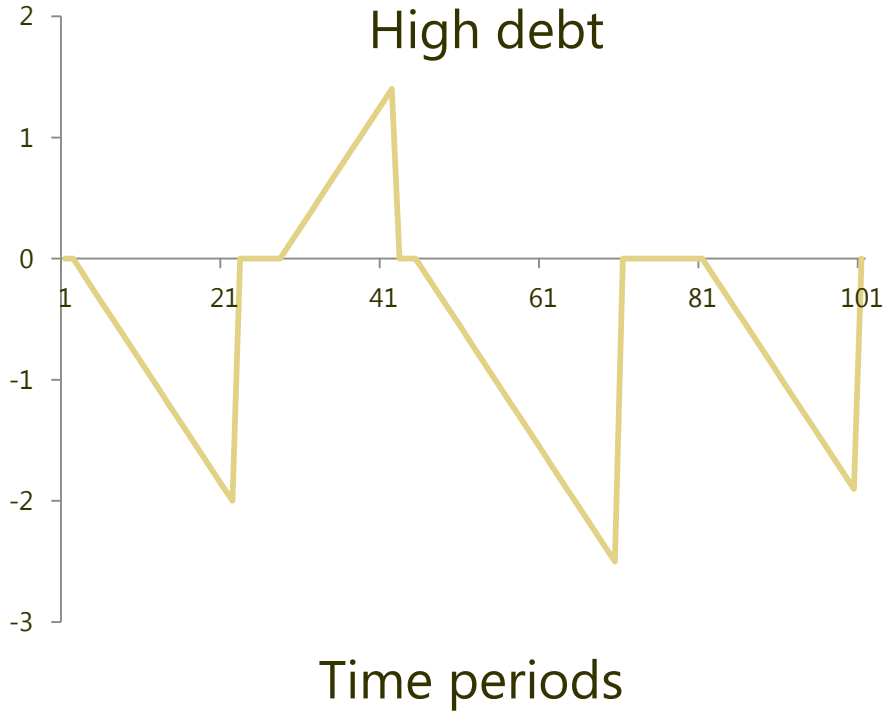
$$I_{t,US} = \begin{cases} 1, & +state \\ 0, & 0\,state \\ -1, & -state \end{cases}$$

$$I_{t,A} = \begin{cases} 1, & +state \\ 0, & 0\ state \\ -1, & -state \end{cases}$$

A simulated path of financial imbalances

Underlying financial imbalances – optimism (up) and pessimism (down)



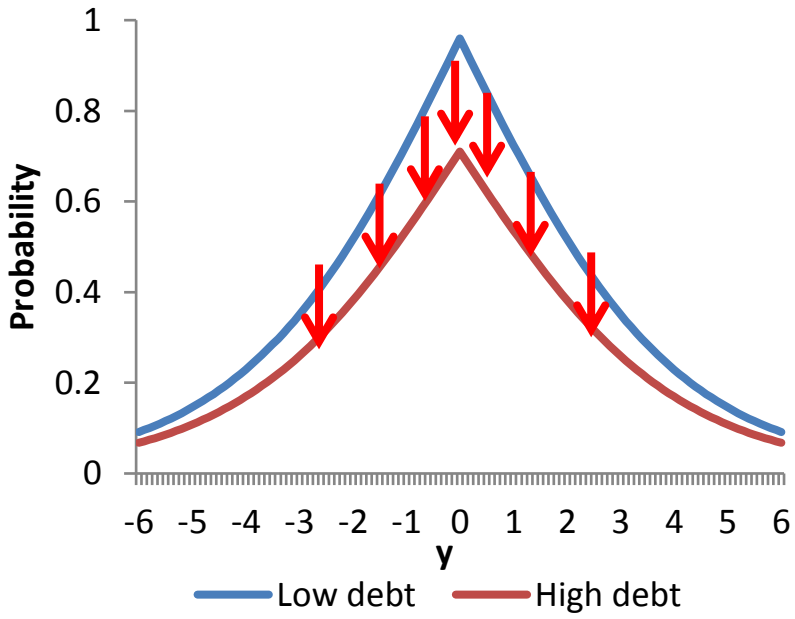


Asset price block – implication of a high debt economy

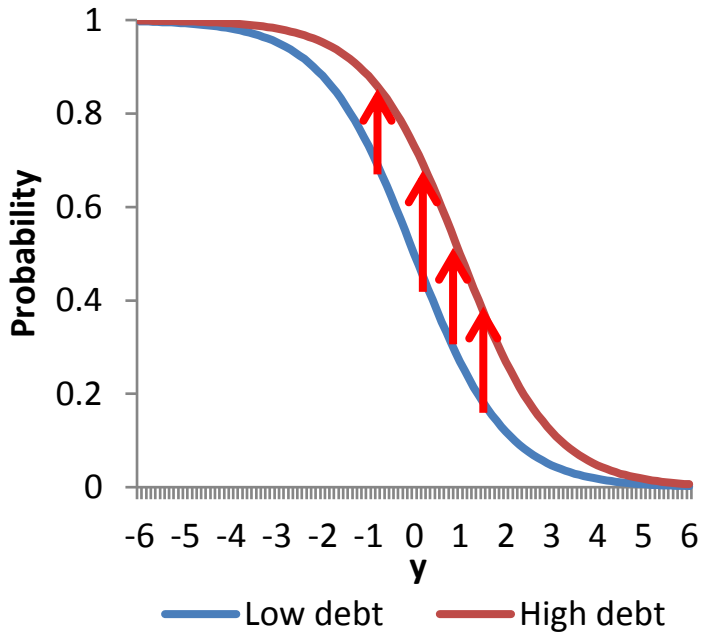
Debt and the transition probabilities

Graph III.2

Effect of high debt on transition probabilities - Staying in the fundamental state over time



Marginal effect of high debt on transition probabilities - Transitioning to the pessimistic state



More financial fragility and longer ruts…plus global spillovers!

Monetary policy block

Standard loss function approach

$$L = L_{US} + L_A \text{ where}$$

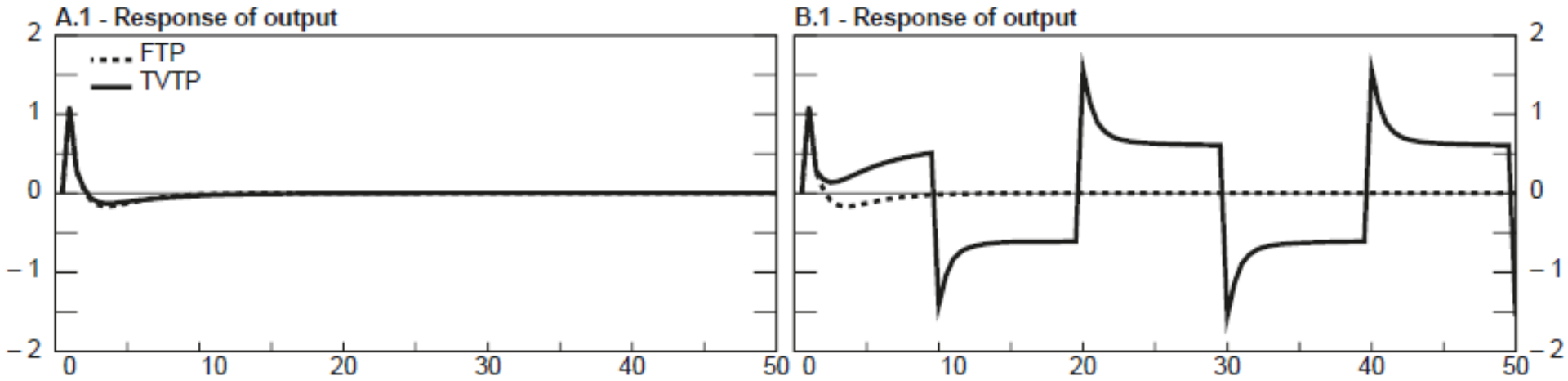
$$L_k = \text{var}(y_k) + \mu_{\pi,k}\,\text{var}(\pi_k) + \mu_{r,k}\,\text{var}(r_k - r_{-1,k}) \quad \text{k=\{US,A\}}$$

Extended Taylor-type rule

$$r_{t,k} = a_{y,k}y_{t,k} + a_{\pi,k}\pi_{t,k} + a_{F,k}\pi_{F,t,k} + a_{NF,k}\pi_{NF,t,k} + a_{D,k}(D_{t,k} - \overline{D}_{t,k}), \quad \text{k=\{US,A\}}$$

Captures domestic tail risk considerations

Impulse response possibilities

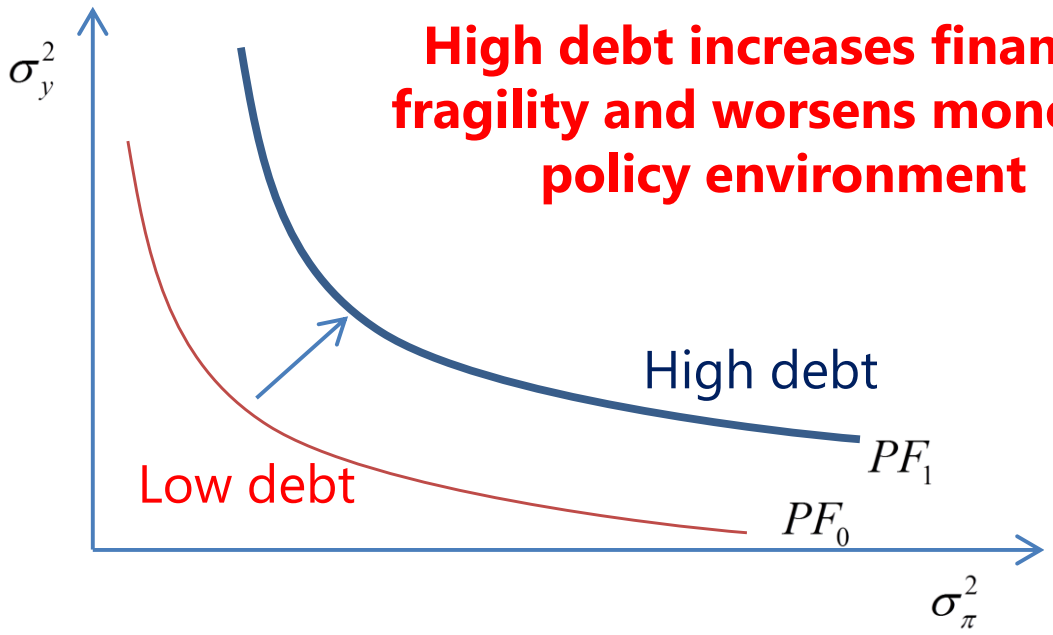


Some results

High debt, financial fragility and the MP environment

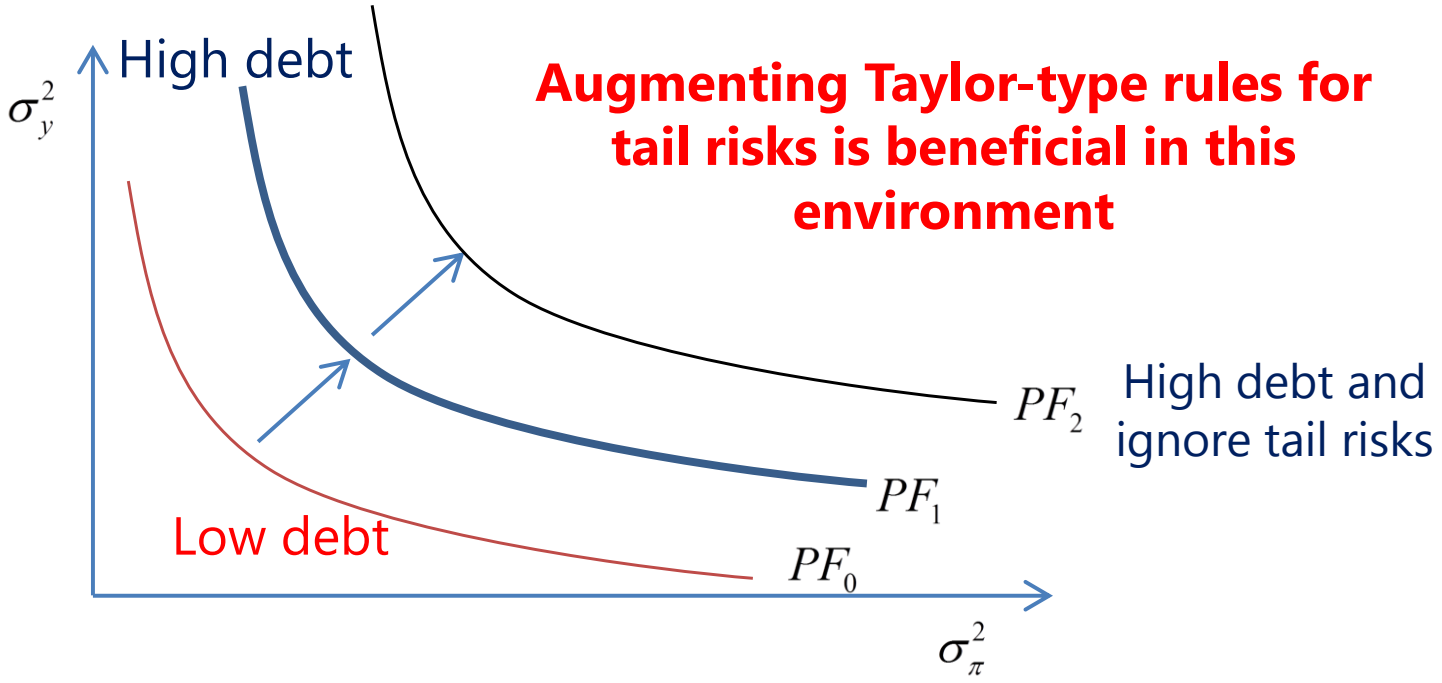
Tail risks and monetary policy trade-offs in a high-debt environment

Graph IV.1



MP activism and responding to tail risks

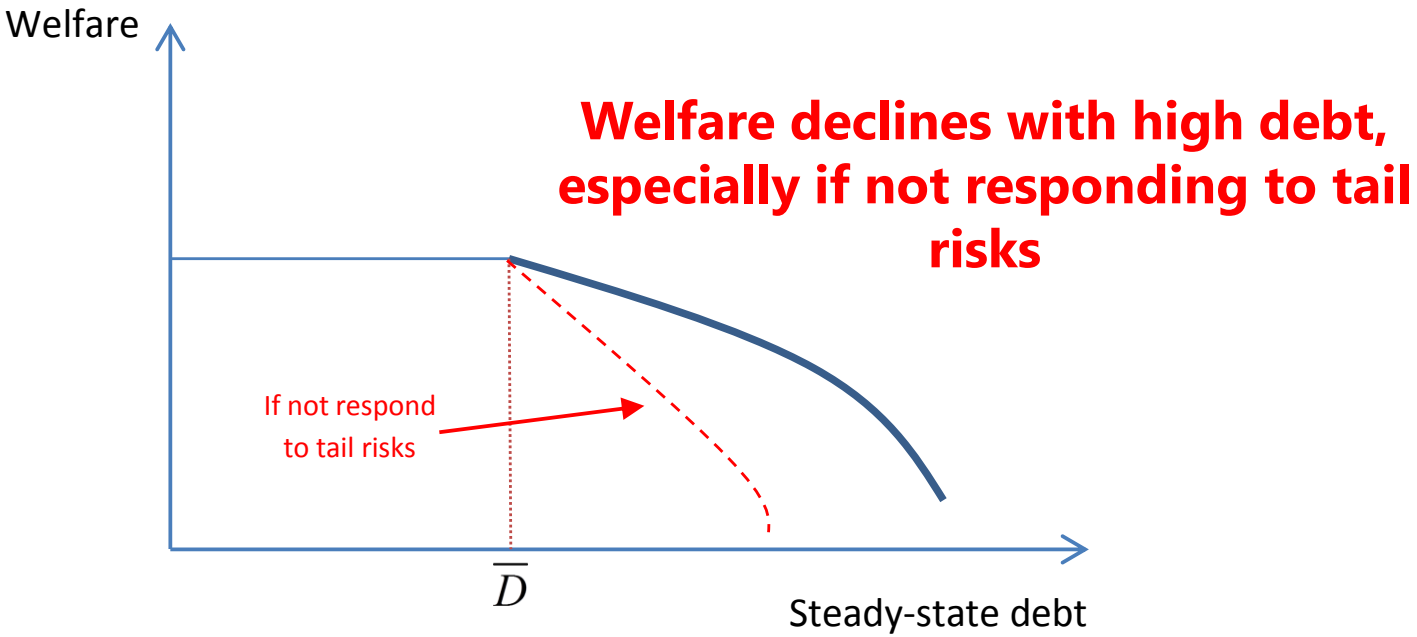
Ignoring tail risks in an environment of high debt, PF_1->PF_2 Graph IV.2



An alternative perspective – welfare implications of debt

Steady-state debt and welfare

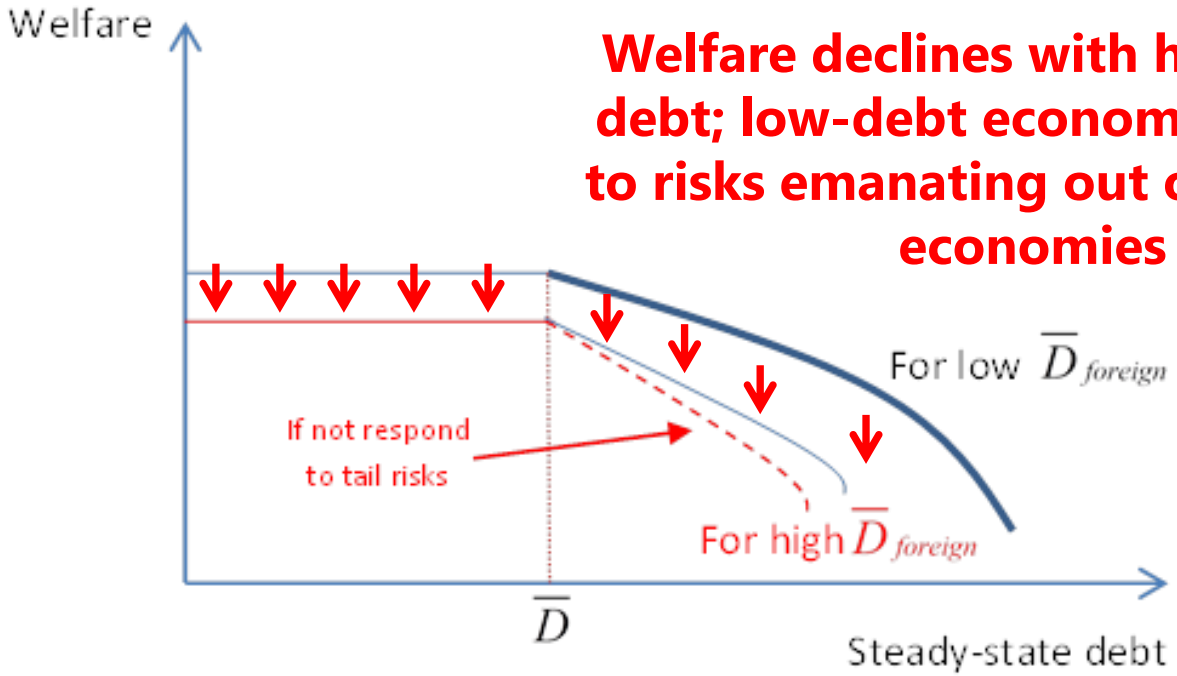
Graph IV.3



Global spillovers – keeping one's house in order is not enough

Steady-state debt and welfare when foreign government debt is high

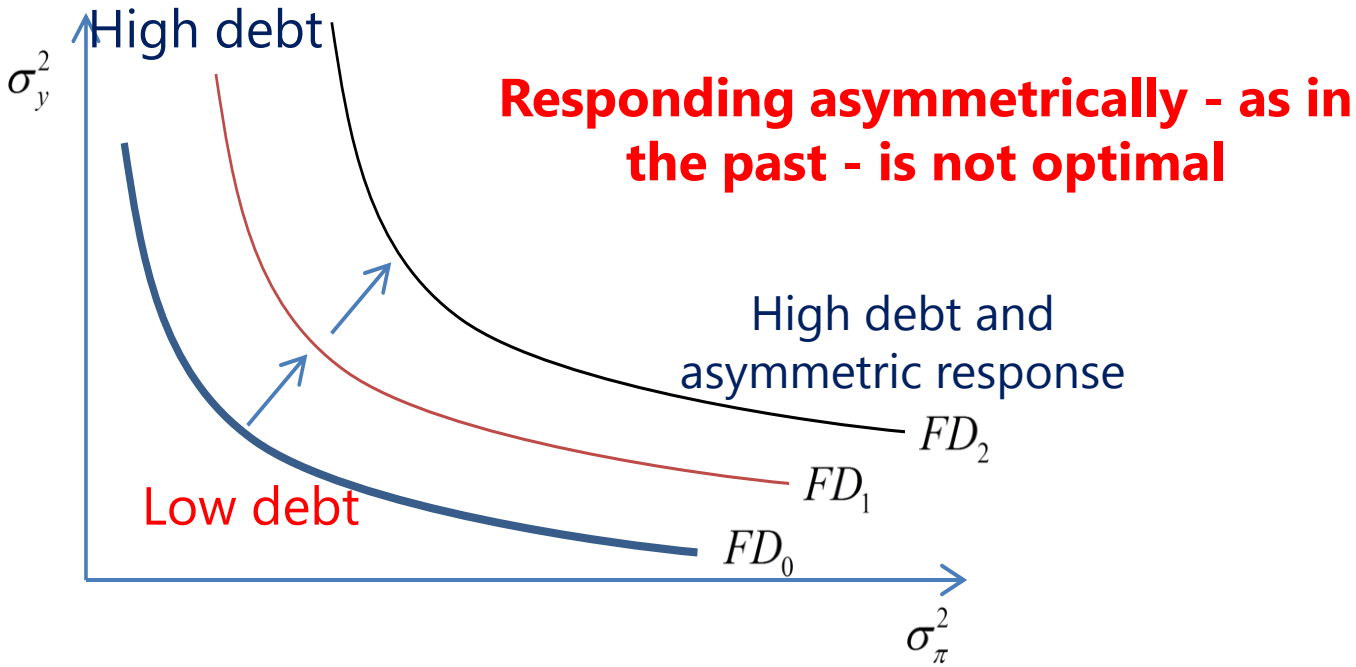
Graph IV.4



Respond to tail risks symmetrically – not like the past

Asymmetric policy responses to tail risks associated with high government debt

Graph IV.5



Conclusions

I used to think if there was reincarnation, I wanted to come back as the president or the pope or a .400 baseball hitter. But now I want to come back as the bond market. You can intimidate everybody.

James Carville

Conclusions

- Bond market more powerful and globally interconnected
- Now debt levels massive and growing; unprecedented exit to come
- In this brave, new world, old monetary policy rules may not be enough; beware of calibrating monetary policy rules to pre-crisis data
- Not just government debt, but also private debt interactions will be critical – more research needed!

What will the next crisis look like?

Thank you