Who is the Market and What Does it Want?

Public Policy, Bond Markets and Credit Default Swaps

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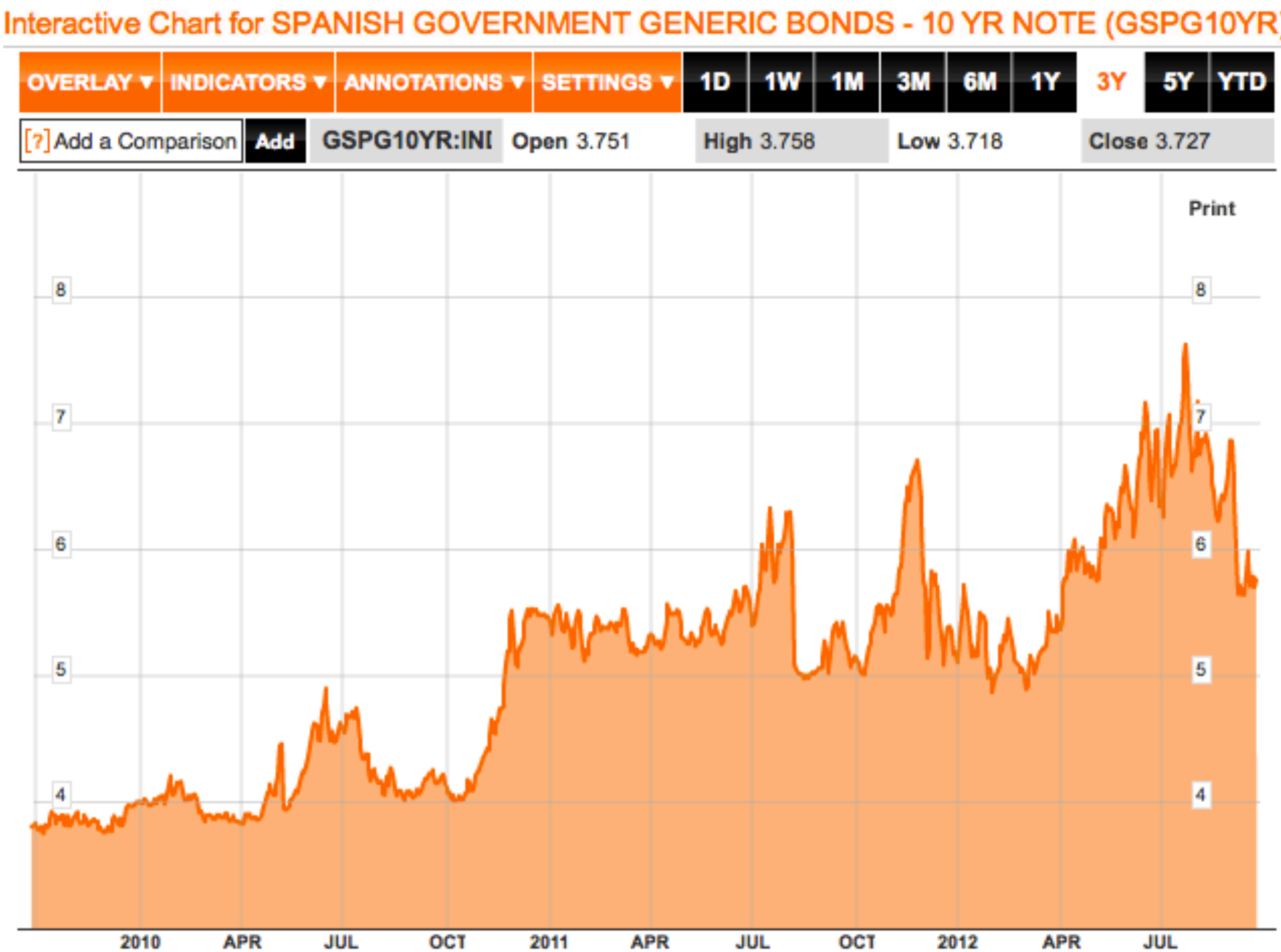
What the Hell is the Market?

- We live in a world where bond markets are highly liquid and serve to “constrain” and “punish” governments


Interactive Chart for SPANISH GOVERNMENT GENERIC BONDS - 10 YR NOTE (GSPG10YR)
OVERLAY
INDICATORS
ANNOTATIONS
SETTINGS
1D
1W
1M
3M
6M
1Y
3Y
5Y
YTD
[?] Add a Comparison
Add
GSPG10YR:INI
Open 3.751
High 3.758
Low 3.718
Close 3.727
Print
8
7
6
5
4
2010
APR
JUL
OCT
2011
APR
JUL
OCT
2012
APR
JUL

Madrid Two Weeks Ago

What the Hell is the Market?

- We live in a world where bond markets are highly liquid and serve to "constrain" and "punish" governments
- The academic wisdom circa 2002:
  - Bond market participants care about macroeconomic policies directly bearing on governments' capacity to repay debt (e.g. Mosley 2003)
- The conventional wisdom circa 2012:
  - The market cares about LOTS of microeconomic policies.
  - Bond market vigilantes are everywhere
  - They punish: The left, restrictive labor market policies, progressive taxation, high corporate tax rates, banking restrictions, and governments that don't pursue "structural reform"

Bond "Markets" Care about Lots of Stuff: Labor Market Policy

On Spain:

"Among the measures markets demanded were to reduce the costs of firing the two-thirds of the workforce that were on permanent contracts."

The Economist

And the demands of “the market” fundamentally conflict with the interests of citizens.

In describing the Spanish government’s February 2010 proposals to raise the retirement age from 65 to 67, as well as to reduce the fiscal deficit and increase the value-added tax, the *Economist* observed that it took time for the government to finally realize that “keeping both bond markets and unions happy was impossible.”

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- The 'Market' or 'investors'?
  - What is "the market"? What is its causal model? Does it have one or many? And if many, when and how does it punish?

Maybe "Markets" Don't Have Such a Clear Model After All

During the European debt crisis, we've observed a cycle: sovereign debt is downgraded, the government announces new austerity measures; the markets are described as worrying further about the costs of financing the debt and the implications of austeryt for growth…and another downgrade occurs.

Does the market like austerity or not?

The Relevant Literatures

- Markets, elections and partisanship
  - Implications for macroeconomic management (Campello 2012; Mosley 2003)
  - Uncertainty (Bechtel 2009; Bernhard and Leblang 2000; 2006; Leblang and Mukherjee 2005, Spanokos and Renner 2009)
- Markets and the news
  - Often about stock markets and policy-related news (e.g. Green 2004, Herron 2000, Roberts 1990, Pastor and Veronesi 2012)
- Swings have less to do with politics
  - Markets and herds (Banerjee 1992; Bikchandani et al 1992, 1998)
  - Global dynamics and financial flows (Eichengreen and Mody 2002, Ciarlone et al 2009, Longstaff et al. 2011)

Our ideas:

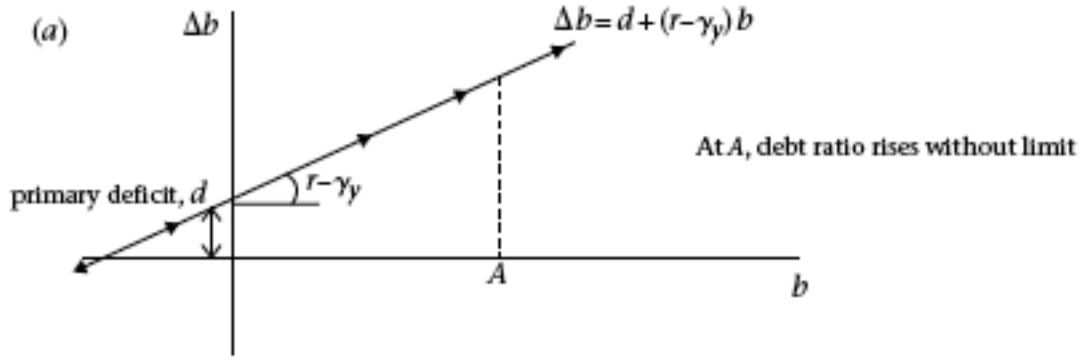
- There is no such thing as “the market”. There are investors.

- If the govt’s ability to repay sovereign debt is central to prices in these markets:

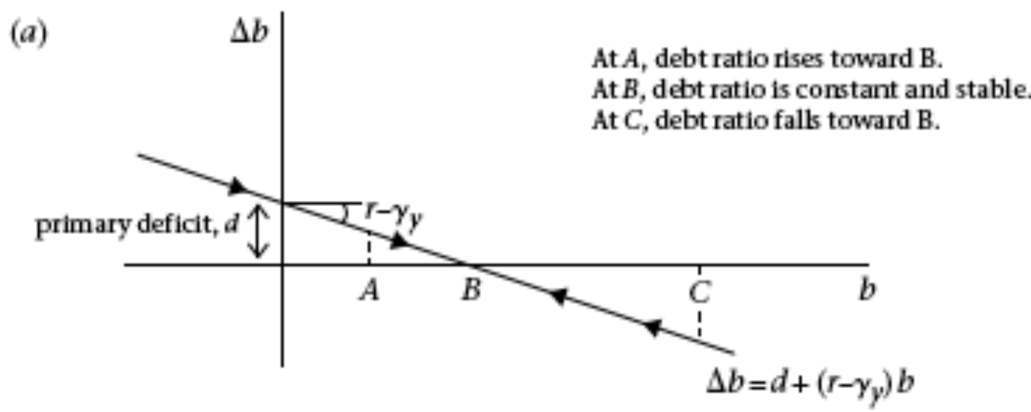
  – The workhorse IS-PC-MR model shows that the impact of any given microeconomic policy can only come through (a) an effect on output or (b) the multiplier on public spending.

  – To what extent do investors have shared beliefs/models about the link between microeconomic policies and output or public spending?

Deficits and Debt in Two Scenarios: The Contemporary Debate



Change in debt=
Primary deficit+
(real r * d.y) debt

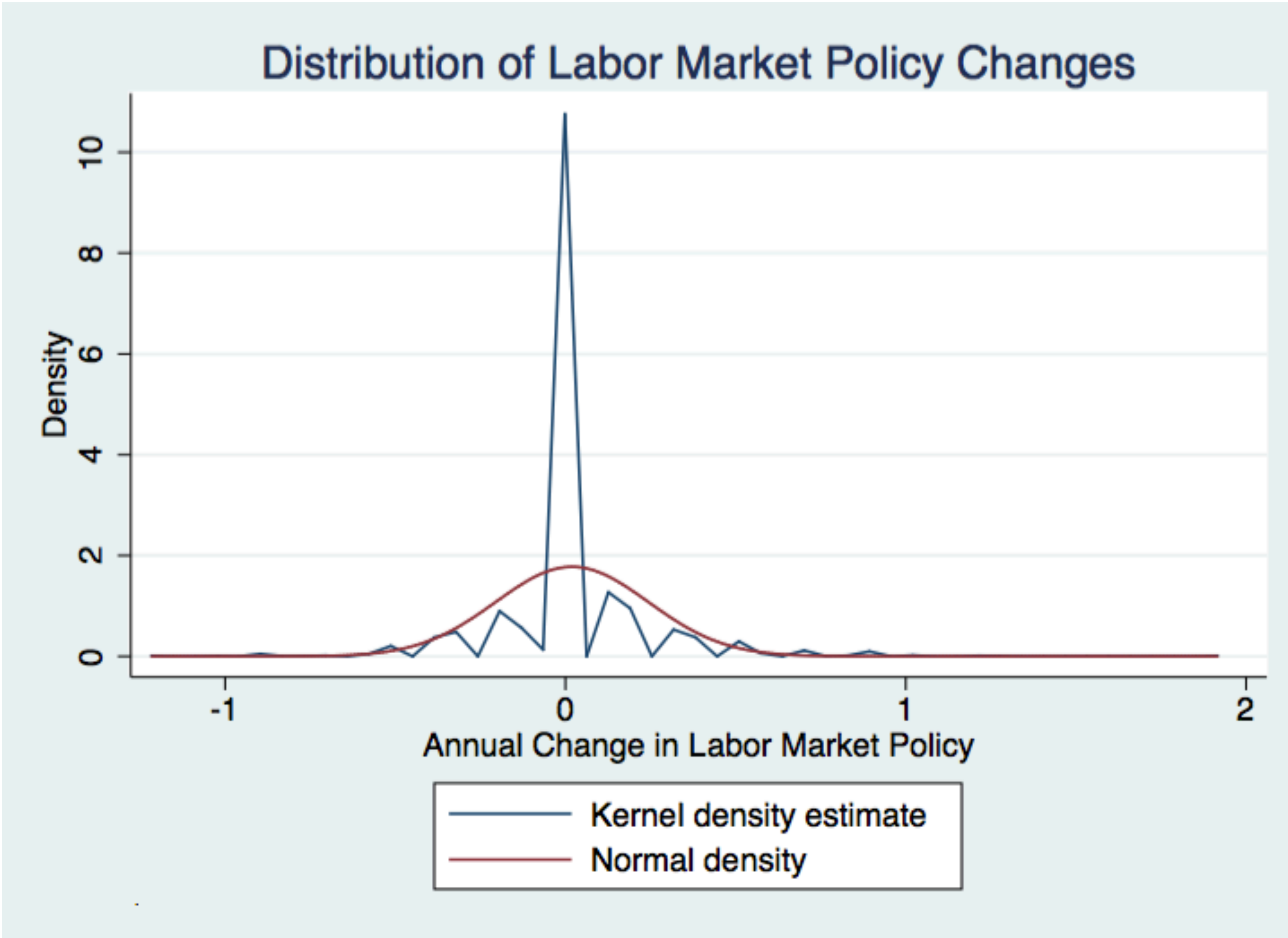


- What's the multiplier on public spending (i.e. what's the effect of delta b on gamma y, or growth)?
- i.e. what's the slope of the curve?
- What if there is a sharp increase in r?
- What is the effect of fiscal consolidation on on gamma y?

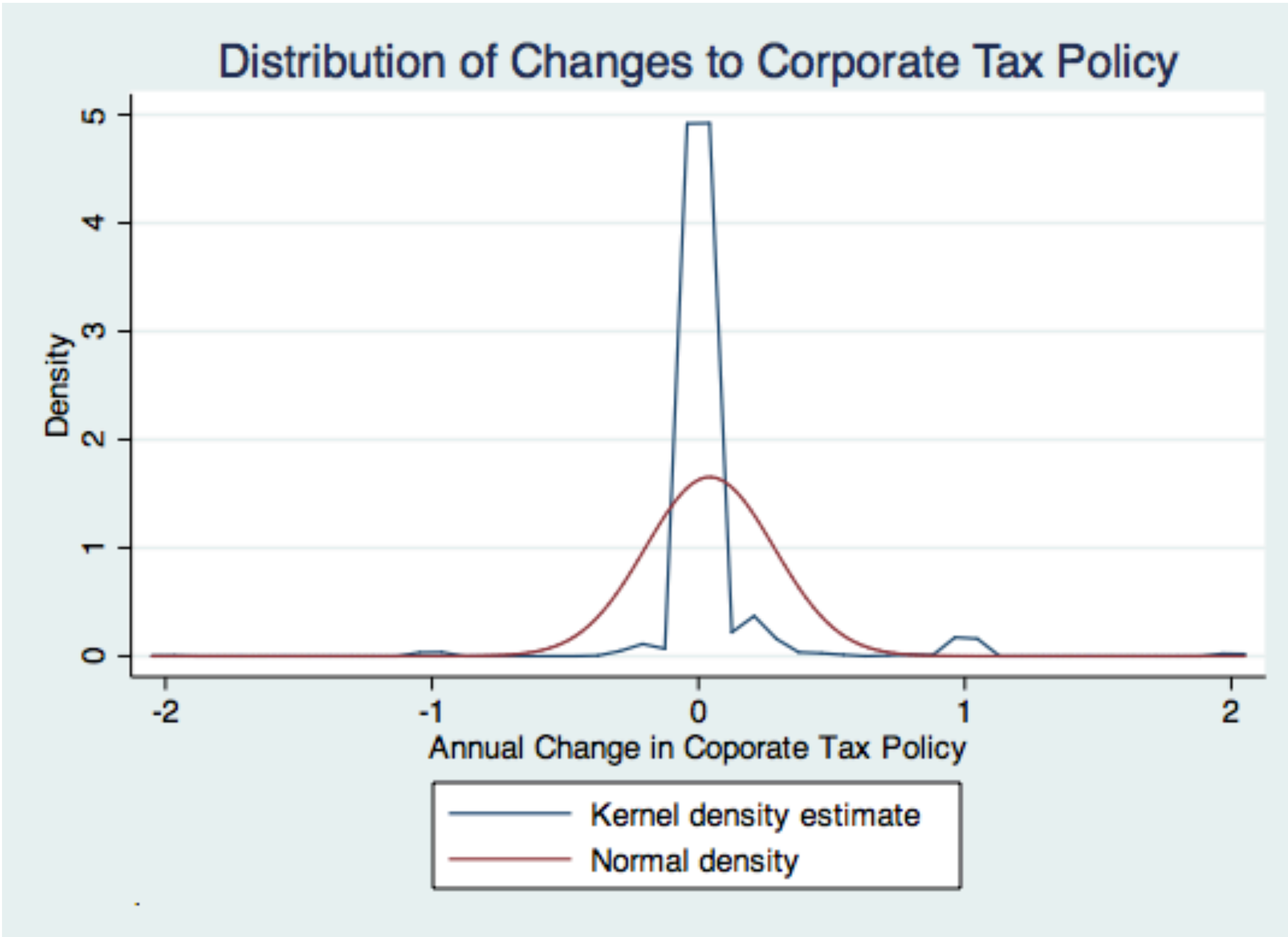
- There is no such thing as “the market”. There are investors.
- If the govt’s ability to repay is central to prices in these markets:
  - The workhorse IS-PC-MR model shows that the impact of any given microeconomic policy can only work through output or the multiplier on public spending.
- There are serious debates in economics and beyond about the effect of nearly every microeconomic policy on those key parameters.
- Investors have different models (or maybe no model), which reflects theoretical and empirical debates about what we know about the effects of microeconomic policy.
- So, the market *can’t* systematically respond to microeconomic policy changes
  - Unless one thinks of increased uncertainty and more trading volume as a systematic response.
  - But we don’t have data on trading volume

The Empirical Strategy

- Use high frequency data on bond markets, credit default swaps, and microeconomic policies to test whether investors respond systematically to precise policy changes
- Bond markets
  - Monthly data on bond spreads for 10 years and approx. 40 countries
  - *Daily* prices on credit default swaps tied to 5 year bonds from 2004-2011
  - That's about 56,300 observations for 38 countries!
- Microeconomic policies
  - Annual data (EIU) on tax, labor, regulatory, and banking policies on 60 countries from 1995-2012
- The challenge: To turn the annual policy data into daily data



Our approach: Take the 5% largest policy changes and date them to the day.


Distribution of Changes to Corporate Tax Policy
Density
0
1
2
3
4
5
-2
-1
0
1
2
Annual Change in Coporate Tax Policy
Kernel density estimate
Normal density

Some wee problems w/the data: Examples of really big corporate tax policy changes

EIU Country/Reform Year
Turkey 2008
Portugal 2005
Poland 2006
Israel 2006
Greece 2009
Germany 2006
Belgium 2004
Austria 2008
France 2008

Some wee problems w/the data: Examples of really big corporate tax policy changes

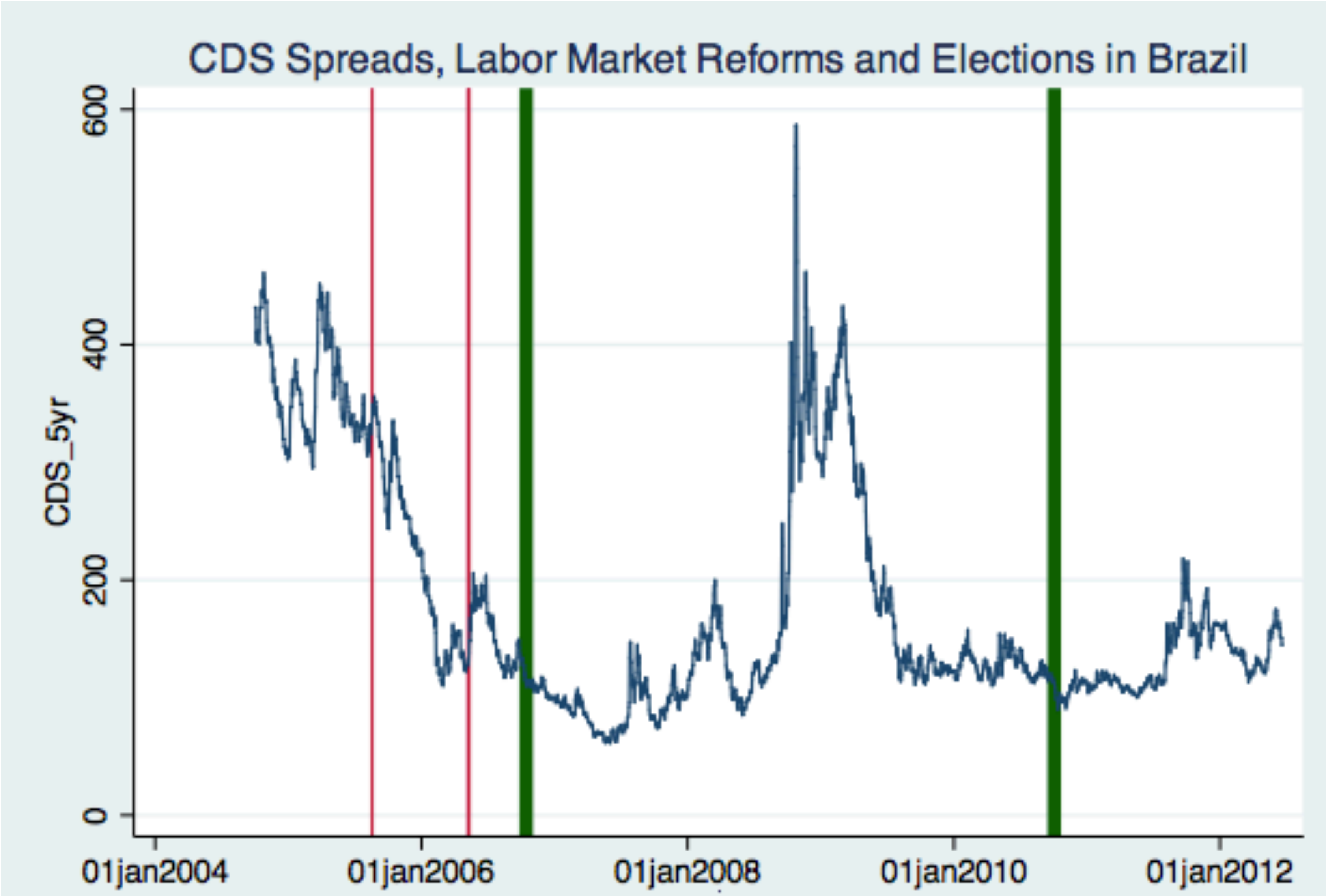
EIU Country/Reform Year	Actual Date of Passage
Turkey 2008	4/1/07
Portugal 2005	11/21/03
Poland 2006	11/12/03
Israel 2006	7/25/03
Greece 2009	4/15/10
Germany 2006	7/06/07
Belgium 2004	12/10/02
Austria 2008	5/6/04
France 2008	Not since 1993

Average gap between EIU year of reform and actual reform: A LOT

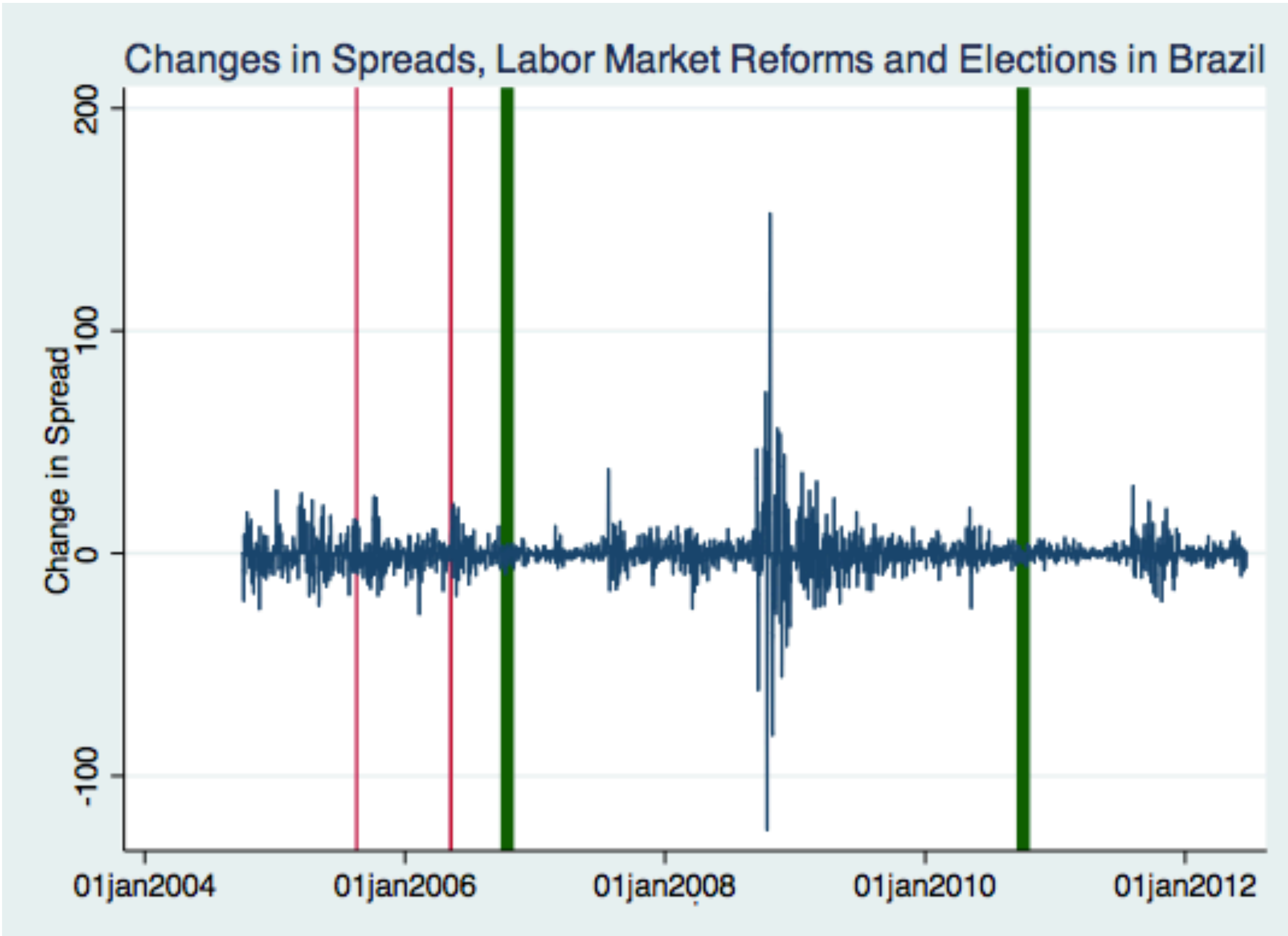
Conclusion #1

“I really hope that investors don't use the EIU data -- because they are idiots if they do.”

Layna Mosley
email communication
Nov. 5, 2012



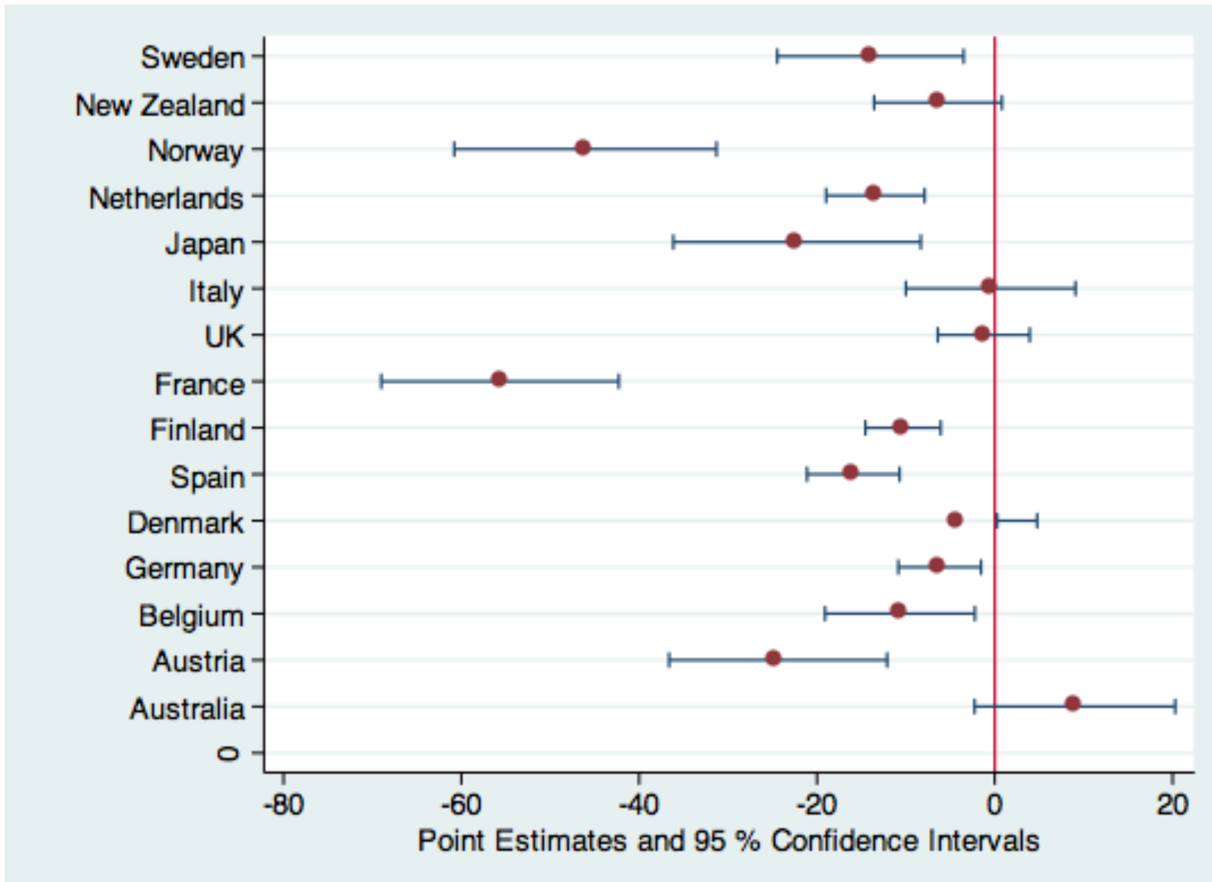
Note: Dates of labor reform marked in red. Month of national elections marked in green.


Changes in Spreads, Labor Market Reforms and Elections in Brazil
Change in Spread
200
100
0
-100
01jan2004
01jan2006
01jan2008
01jan2010
01jan2012

Persevering....

- DV: Change in daily spreads
- IVs:
  - Quarterly GDP, monthly M1, monthly reserves, daily change in NASDAQ/DJS
  - election month, partisanship, day of passage of corporate tax and/or labor market reform
- Additional:
  - Experimented with assorted reform windows: 30, 60, 90, 180 days
  - Experimented with price changes and volatility of prices over these windows
- Estimated lots o' different ways

The only positive finding on CDS price changes: U.S. market movements



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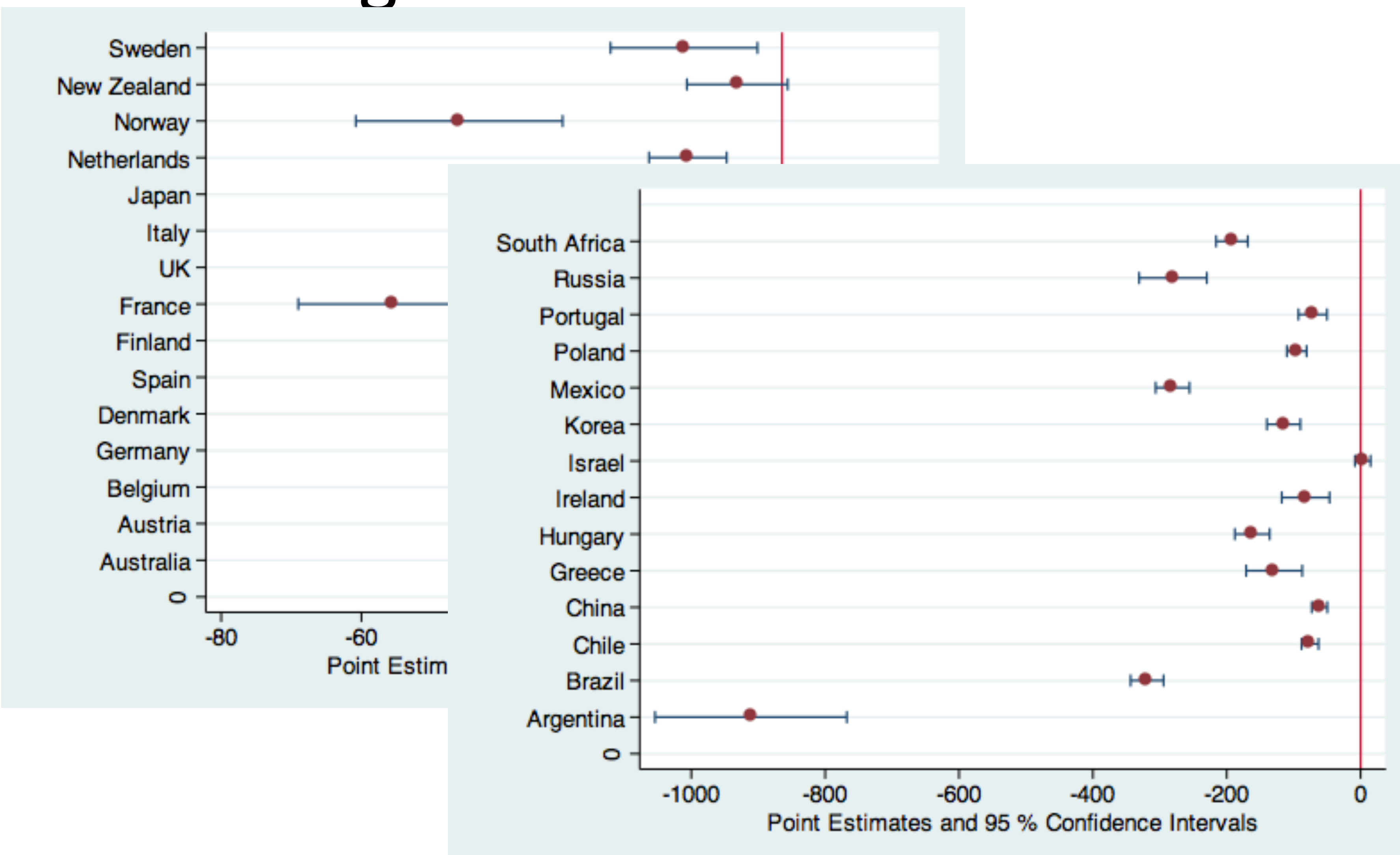

(Non)findings

1. We find no relationship between spreads and the largest corporate tax and labor reforms over 30, 60, 90, & 180 day reform windows.
2. We find no relationship between the *volatility* of spreads and the largest corporate tax and labor reforms over 30, 60, 90, & 180 day reform windows.
3. Fwiw, we also can't find anything using annual data on sovereign bonds & policy reform.

Some Conclusions & Challenges

- We can't find any evidence that CDS markets respond to big, important microeconomic policy changes, but…
  - Anyone have any idea on where to get serious (fine-grained, daily or monthly) data on microeconomic policy/reform?
  - Markets are forward looking, so when to date policy changes to/from?
- How distinguish the microeconomic and macroeconomic effects of reforms to something like tax policy?
  - If markets *do* care about fiscal deficits, as analyses with annual data suggest, do microeconomic reforms matter indirectly?
- The observations aren't i.i.d.—there's a global economy and the investors have positions in multiple countries.
  - E.g. Brooks, de Cunha and Mosley IPES presentation

But Maybe the Markets don’t care about Partisanship

- On Spain:

  “What markets know is that whichever party is in power, it will have to implement structural reforms."

Financial Times

The 5% Largest Labor Market Policy Changes

countr~e	year	LMRT_c~e
AR	2002	.8
DZ	1998	.7
AU	2003	.9
BE	1998	.6
BR	2000	.7
BR	2005	-1
BR	2006	-.7
BG	1999	.8
CA	1998	.6
CA	2003	.6
CL	2001	-.8
DK	1999	.8
EG	1996	.9
FI	1998	1
FI	2000	1.2
FI	2003	.6
DE	2003	.7
GR	1998	.7
HU	2005	-.6
ID	1999	-.6
IR	1996	-.9
IR	1998	1.3
IL	2003	.9
MY	2003	.9
NO	2003	.9
PE	2002	-.6
PH	2002	.6
SA	1998	-1.2
SA	2000	.7
SK	2005	-.9
ZA	1996	-.6
ZA	2003	1.9
ZA	2004	-.9
ZA	2005	1
KR	2002	.6
KR	2006	.7
ES	1996	.6
ES	2000	.7
SE	2003	.9
SE	2004	-.6
TR	2005	.6
VE	1998	-.8