Political Uncertainty and Public Financing Costs: Evidence from U.S. Gubernatorial Elections and Municipal Bond Markets

by Pengjie Gao and Yaxuan Qi

Discussion

Pietro Veronesi

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Main Contribution and Outline of Discussion

- Main contribution of the paper:

  Around gubernatorial elections, yields of municipal bonds are

  1. higher by 6 to 8 basis points;
  2. higher still during downturns than during booms (between 7.5 to 18 bps more);
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- Outline of discussion

  1. Review Pastor and Veronesi (2013, *JFE*)
  2. Interpret the model for the case of gubernatorial elections
  3. Additional comments on the results

Pastor and Veronesi (2013)

- Finite horizon economy $[0, T]$ with a continuum of firms $i \in [0, 1]$ and utility maximizing investors.
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- **"Quasi-benevolent" government** has economic and non-economic motives:

$$\max_{n \in \{0,1,\ldots,N\}} \mathrm{E}_\tau \left[C^n \frac{W_T^{1-\gamma}}{1-\gamma} \mid \text{policy } n \right]$$

  - Social planner solution has $C^n = 1$ for all n.

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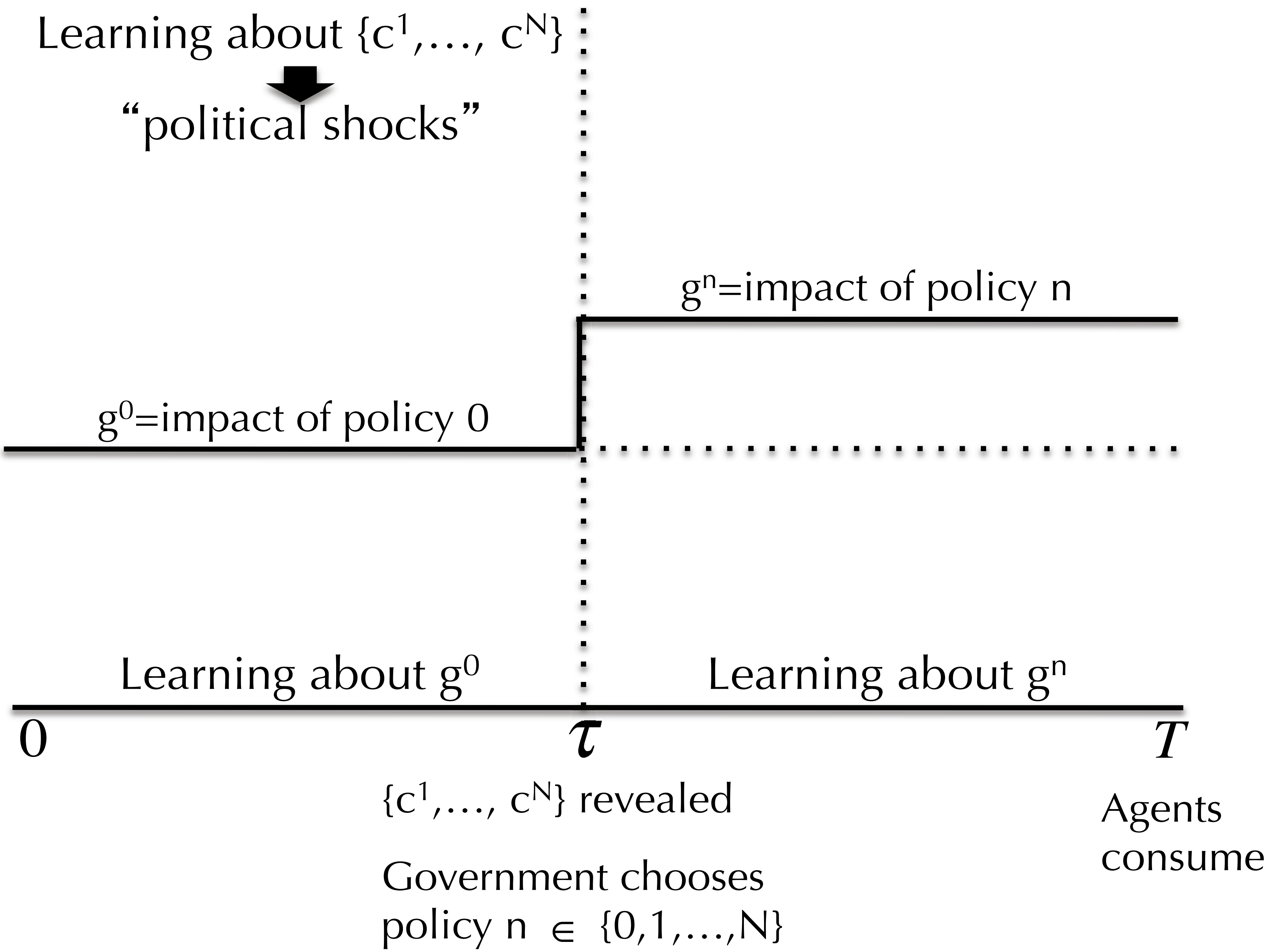
- Agents **learn** about current policy impact g^0 by observing realized profitability.
- Agents **learn** about political costs C^n by observing political signals


Learning about {c^1,…, c^N}
"political shocks"
g^n=impact of policy n
g^0=impact of policy 0
Learning about g^0
Learning about g^n
0
τ
T
{c^1,…, c^N} revealed
Government chooses policy n $\in$ {0,1,…,N}
Agents consume

Key Model Implications

- PV (2013) solve for the optimal government policy choice. Corollary:

  A **policy change** occurs at time τ iff $\widehat{g}_\tau$ is below a threshold

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- **Result: Three Shocks.** Before time τ, SDF follows the process

$$\frac{d\pi_t}{\pi_t} = \underbrace{-\gamma\sigma d\widehat{Z}_t}_{\text{Capital shocks}} + \underbrace{\sigma_{\pi,0} d\widehat{Z}_t}_{\text{Impact shocks}} + \underbrace{\sum_{n=1}^{N} \sigma_{\pi,n} d\widehat{Z}^n_{c,t}}_{\text{Political shocks}}$$

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2. **Impact** shocks: Learning about current policy impact ($d\widehat{g}_t$)
3. **Political** shocks: Learning about political costs ($d\widehat{c}_t^n$)
   - Orthogonal to economic shocks
   - $\sigma_{\pi,n} \to 0$ when $\widehat{g}_t \to \infty$

A Two-Policy Example

- Two potential new policies: **High Risk – High Return** policy (H) and **Low Risk – Low Return** policy (L).

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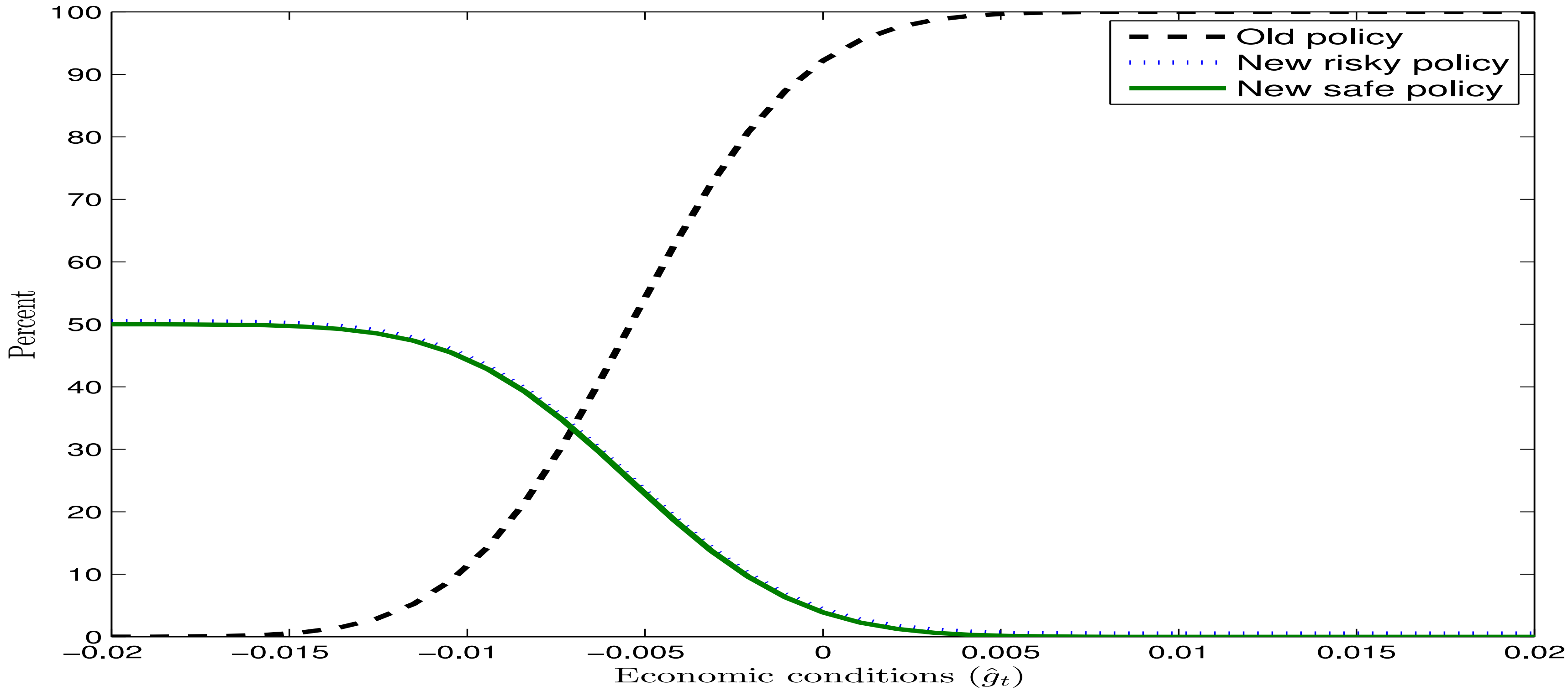
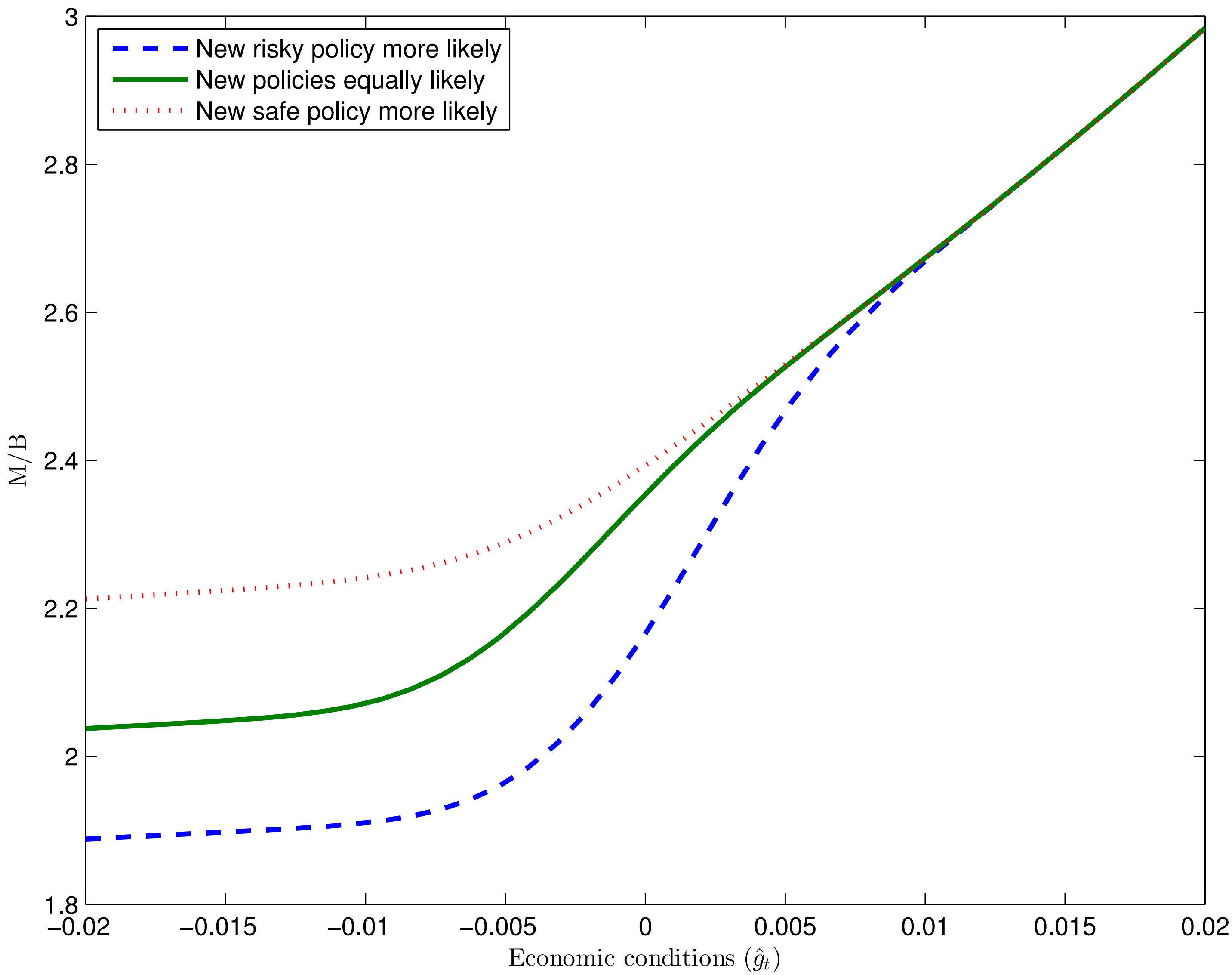
Probability of Adopting a Given Government Policy



Source: Pastor and Veronesi (2013) *Political Uncertainty and Risk Premia*, JFE

The Level of Stock Prices: Economic vs Political Shocks



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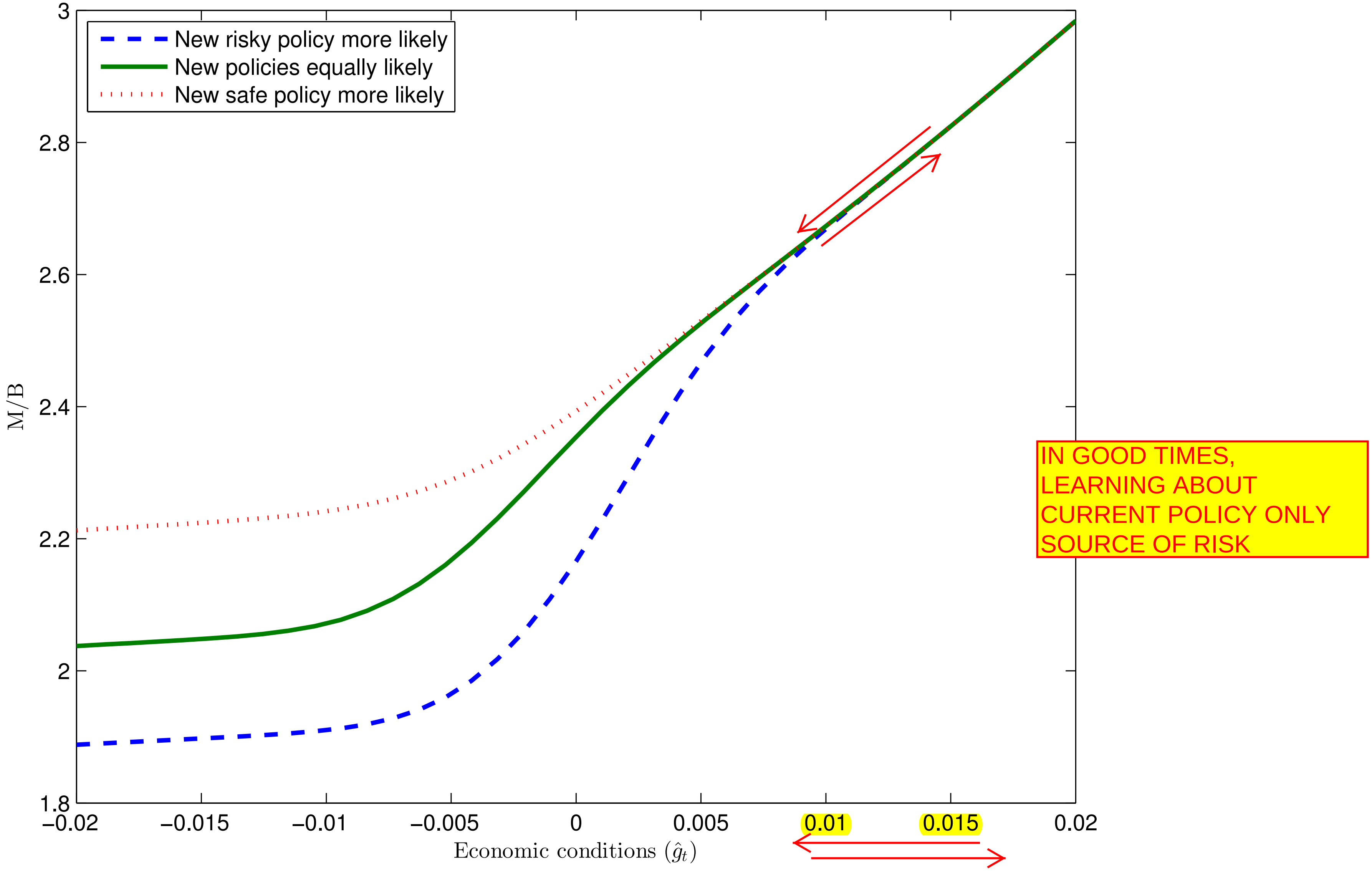

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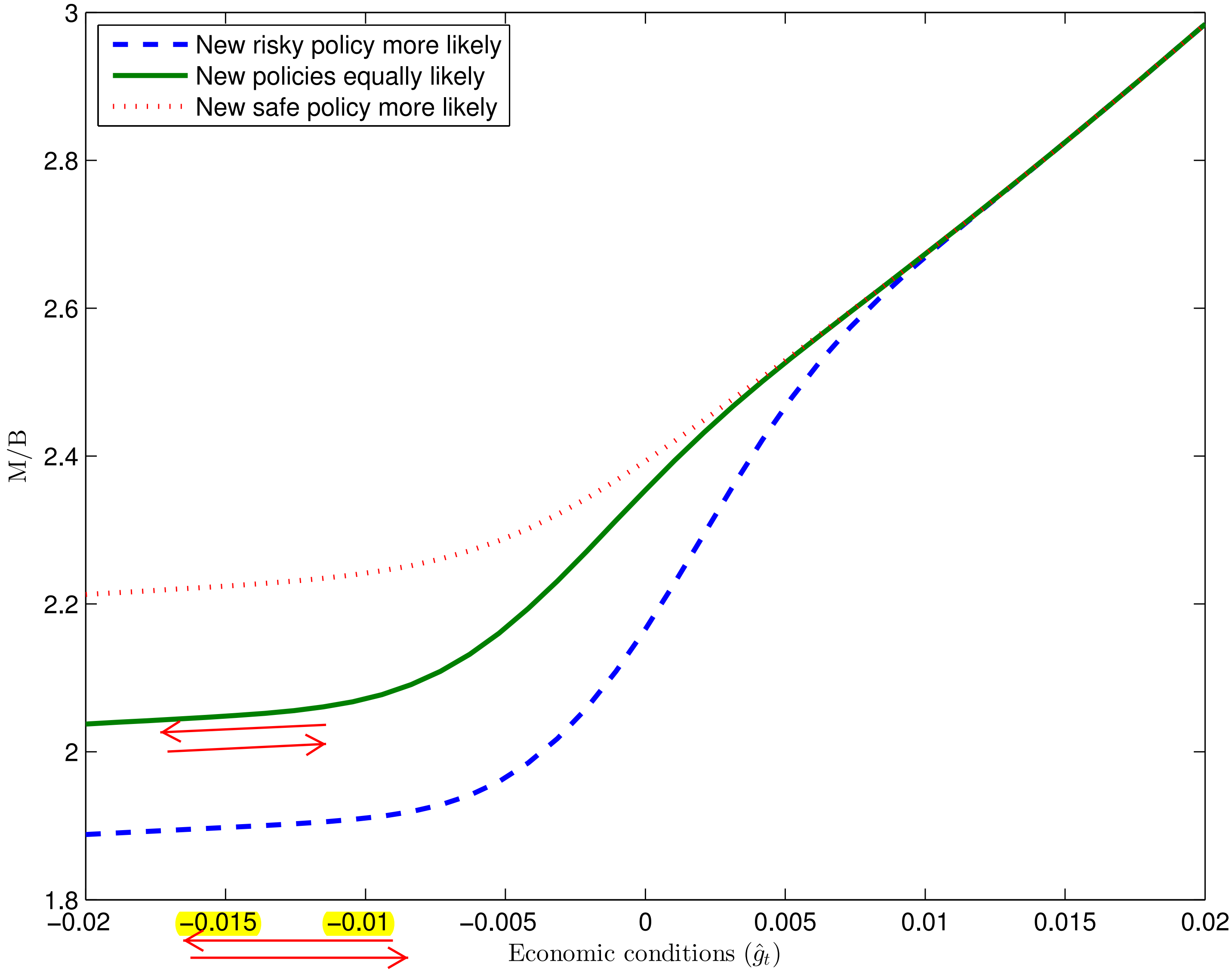

IN BAD TIMES, LEARNING ABOUT CURRENT POLICY SMALL SOURCE OF RISK

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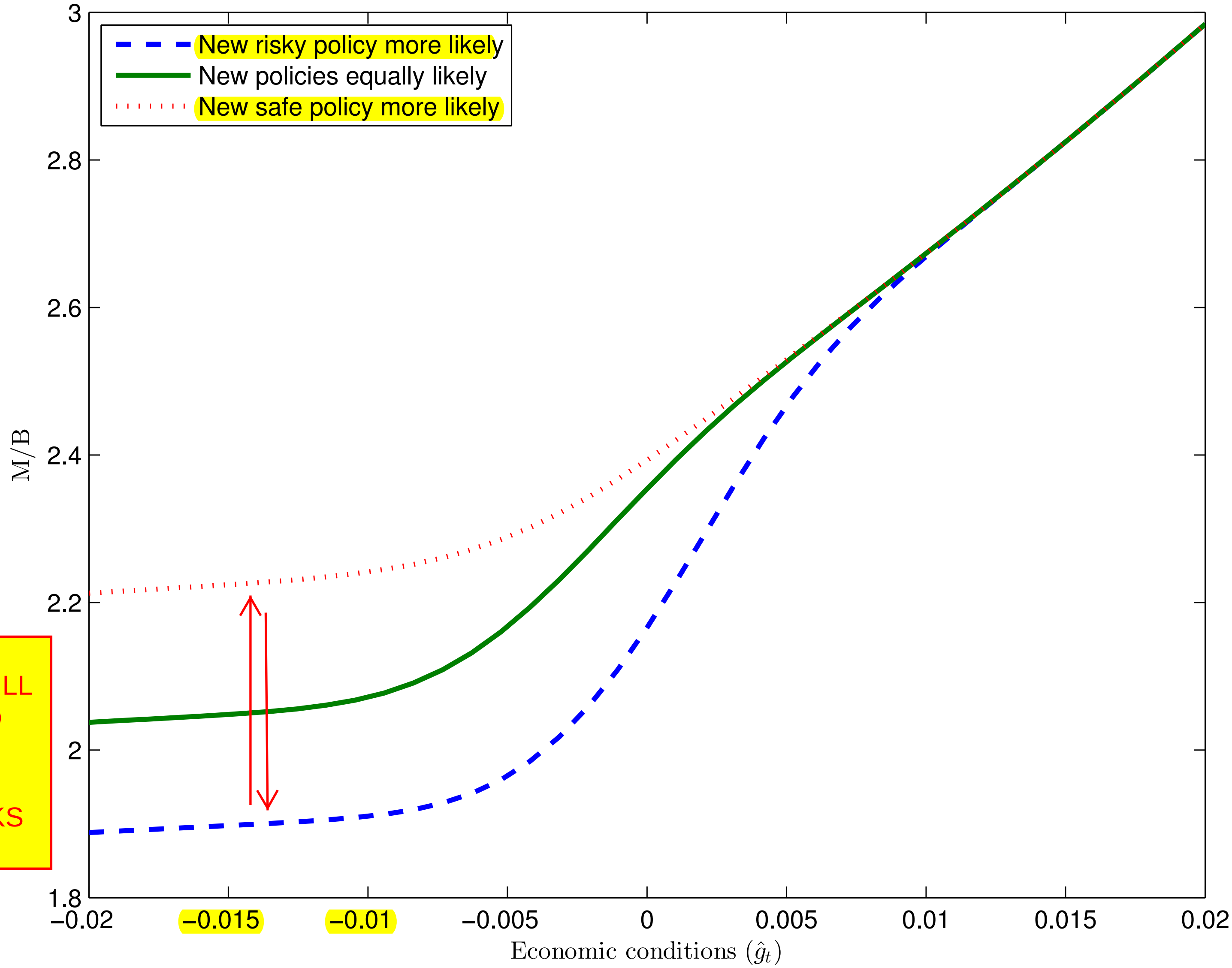

BUT LEARNING WHICH POLICY WILL BE IMPLEMENTED MUCH MORE IMPORTANT ==> POLITICAL SHOCKS PRICED

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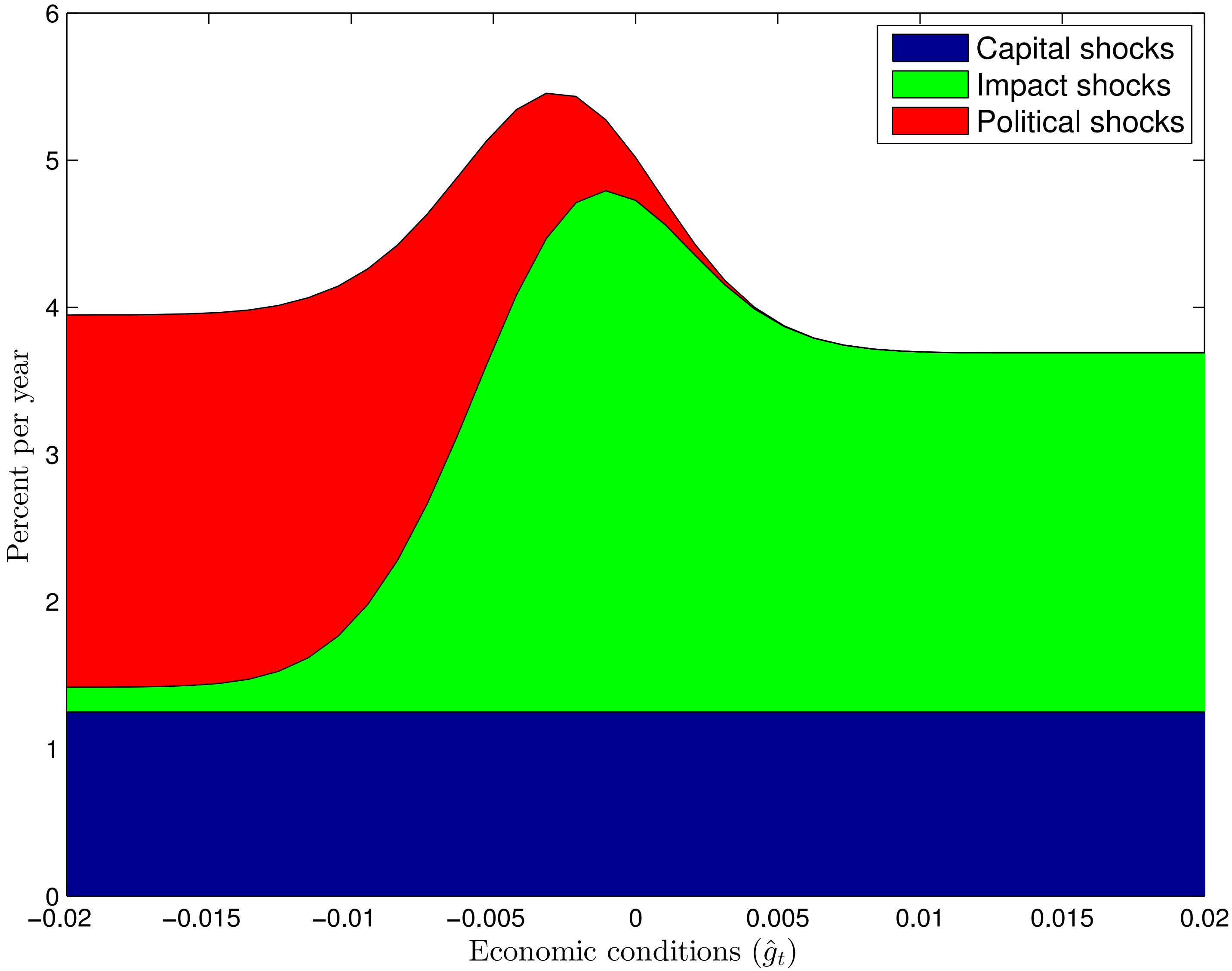
The Equity Risk Premium and Its Components



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Re-interpretation of PV model for Elections

- Kelly, Pastor and Veronesi (2014) also use elections to pin down exogenous variation in political uncertainty.
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- Kelly, Pastor and Veronesi (2014) also use elections to pin down exogenous variation in political uncertainty.
  - Obtain implications for option prices, and document the size of political risk premium using options.

- The PV model can be *reinterpreted* to analyze **elections**
  - Voters decide at time τ whether to replace the incumbent government and, if so, which of N potential new governments to elect
  - Voters pay attention not only to economics ($C =$ charisma of new candidate)
  - Result: The incumbent government is more likely to be voted out when the economy is doing poorly

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   (a) Pastor Veronesi (2012, JF) extend their results to policies affecting subset of economy.

   (a.1) Relative size of state (here) would matter.
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   (b) Market segmentation: investors in municipal bonds have their wealth tied to same state wealth.

   $\Longrightarrow$ Who are the marginal investors in municipal bonds?

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  - If $tax \times W_{t_b} > D \Longrightarrow$ bond holders get D.
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  - Because there is no destruction of wealth but just transfer, the SDF is the same as in PV. Renormalize capital $B_t = 1$, and we obtain

$$\begin{aligned}\Longrightarrow \frac{BondPrice}{D} &= 1 - \frac{tax}{D} E\left[\frac{\pi_{t_b}}{\pi_t} \max\left(\frac{D}{tax} - W_{t_b}, 0\right)\right] \\ &= 1 - \frac{tax}{D} Put\left([\widehat{g}_t, \widehat{C}_t^H, \widehat{C}_t^L], \frac{D}{tax}, t_b - t\right)\end{aligned}$$

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  - Kelly, Pastor, and Veronesi (2014) derive option pricing formula.

Implications for Bonds and Gubernatorial Elections

- Back of the envelope calculation: If $B_t = 1$, $E[GDP] = E[B_{t+1} - B_t] = (e^{\mu} - 1) \times 1 \approx \mu = 10\%$ (in PV).
- From Gao and Xi, Debt/GDP = [0, 18%]. Let's fix it to $D/GDP = 10\%$ $\Longrightarrow D = 10\% \times \mu = 1\%$.
- What about taxes? This is the tax that only goes to repay debt, and not to pay other government spending. So, let's say $tax = 1\%$. $\Longrightarrow tax/D = 1$

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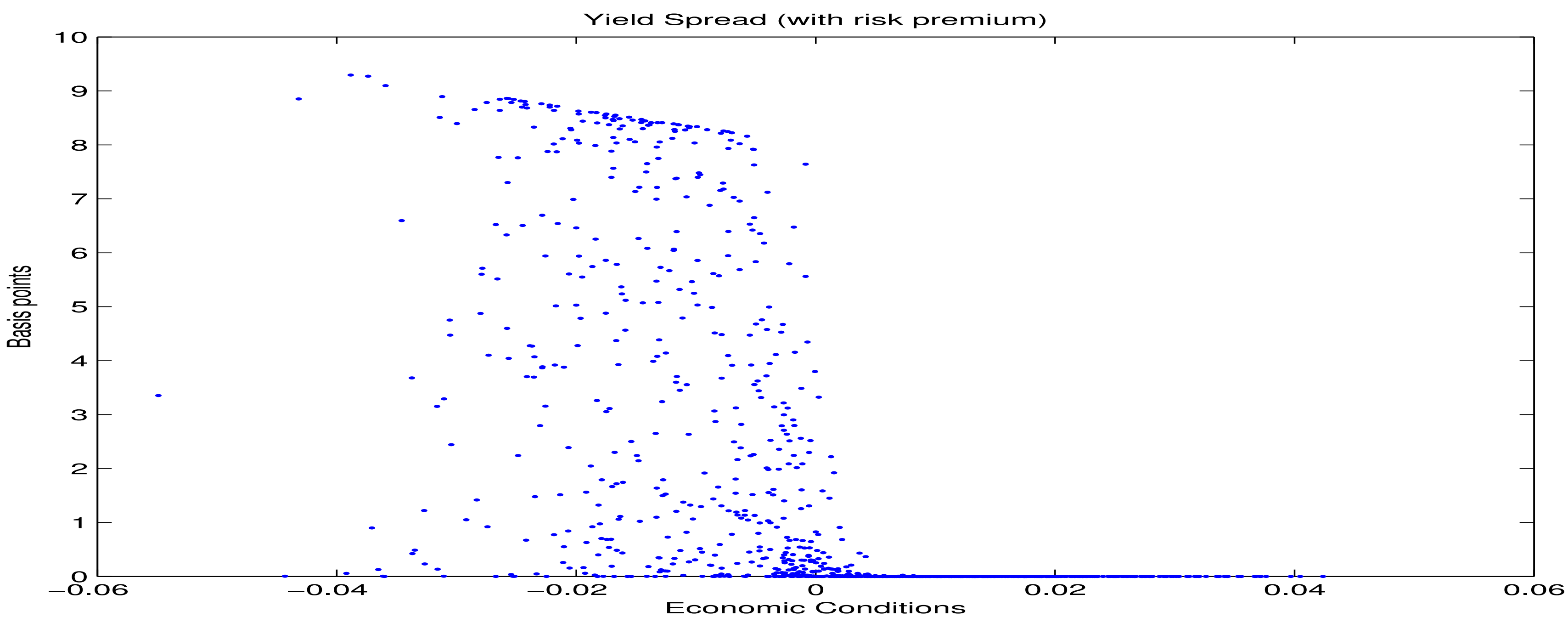
Yield Spread and Market Conditions



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- Higher yield spread may be due to higher probability of default and loss-given-default, and not a higher risk premium.
- Compute the yield spread without a risk premium using:

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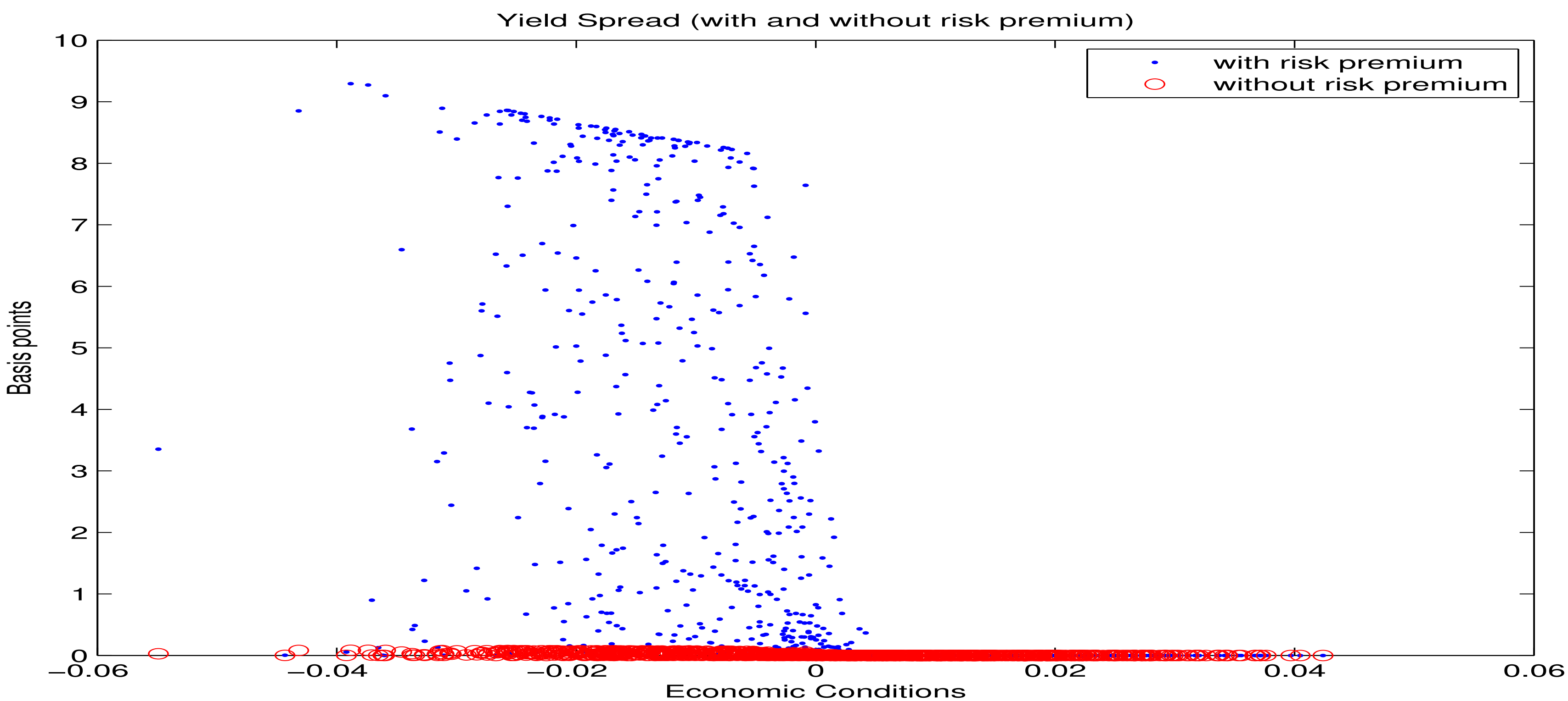
Yield Spread (with and without risk premium) and Market Conditions



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3. How does the yield spread depends on policy uncertainty?

- Given beliefs $p_t^n = Pr\left(\text{Government chooses policy } n \text{ at } \tau\right)$, we can compute

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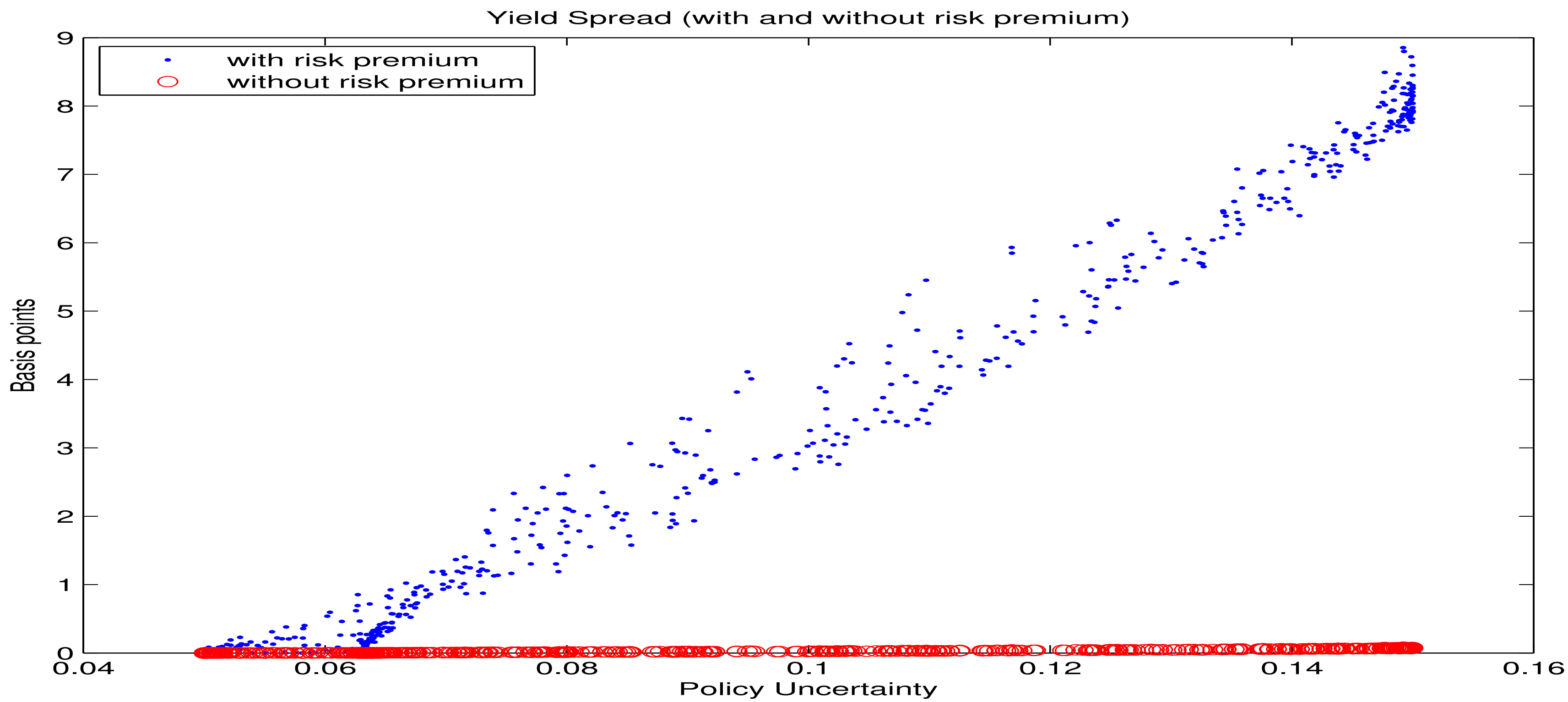

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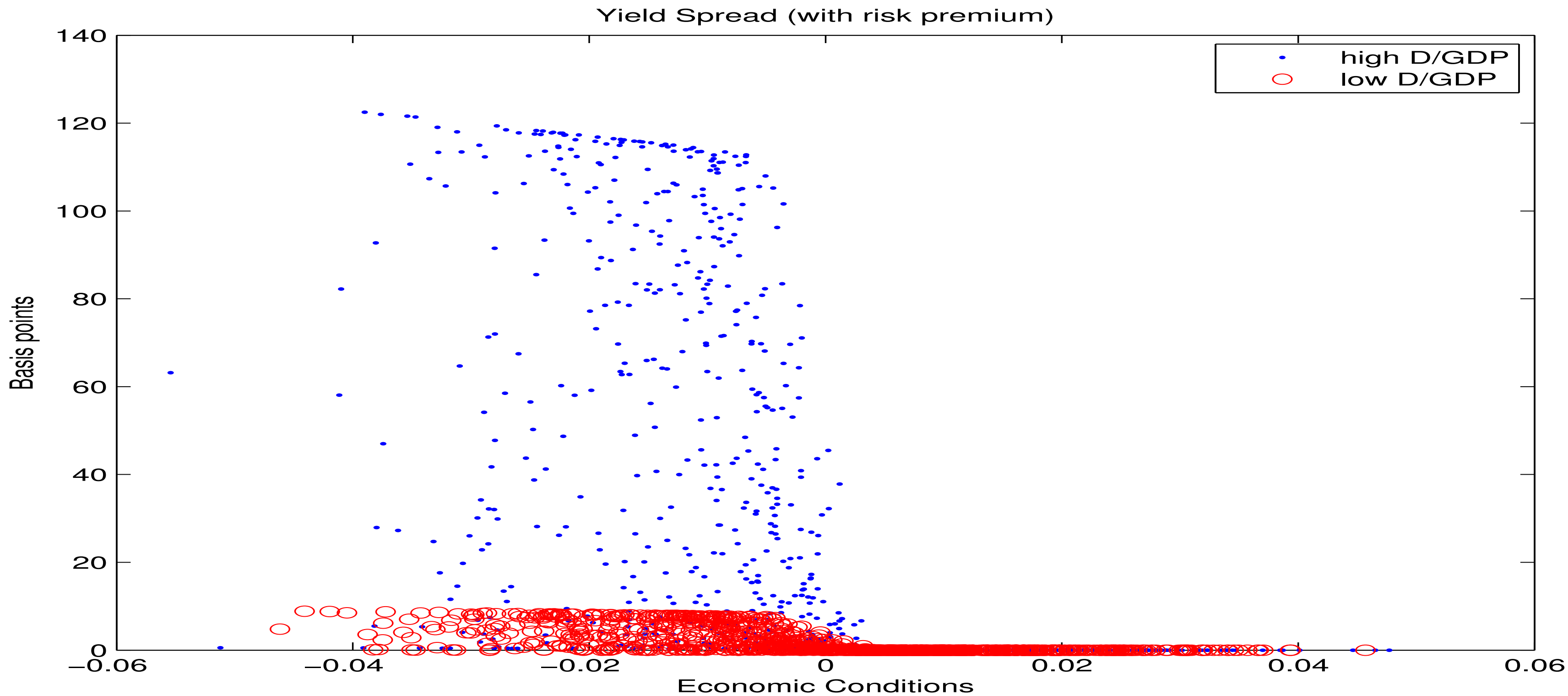
Yield Spread, Market Conditions, and Debt/GDP



Conclusion

- Evidence of political risk premium presented in this paper is compelling and indeed consistent with theoretical framework of PV, once extended to bonds and elections.
  - Yes, one could quibble with some of specifications and empirical proxies used in the paper (e.g. why use indicator functions for boom and recessions? why use "undecided voters" for political uncertainty? etc.), but overall, the evidence is quite interesting.
- The evidence is also consistent with other recent papers documenting the impact of political uncertainty on risk premia. For instance:
  - Kelly, Pastor and Veronesi (2014) show that options that include political events are much more expensive than those that don't $\Longrightarrow$ large insurance premium to cover against large surprises from political events.
  - Manzo (2013) show that the risk premium of European sovereign credit spreads is higher when Baker, Bloom, and Davis European Policy Uncertainty Index is higher, after controlling for a large number of other "usual suspects".