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

by Pengjie Gao and Yaxuan Qi

Discussion

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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);
  3. higher when there is more uncertainty on election outcome.

⇒ Political uncertainty generates a substantial risk premium
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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.

• Current government policy impacts firms’ average profitability.
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- Each policy $n$ has two attributes:
  - $g^n =$ **impact** of policy $n$ on average firm profitability
  - $C^n =$ **political cost** of policy $n$
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  $g^n = \text{impact of policy n on average firm profitability}$
  
  $C^n = \text{political cost of policy n}$

- “Quasi-benevolent” government has economic and non-economic motives:
  
  $$\max_{n \in \{0, 1, \ldots, N\}} \mathbb{E}_\tau \left[ C^n \frac{W_T^{1-\gamma}}{1-\gamma} \mid \text{policy n} \right]$$

  - Social planner solution has $C^n = 1$ for all $n$. 
Uncertainty about Government Policy

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- Agents learn about current policy impact $g^0$ by observing realized profitability.
- Agents learn about political costs $C^m$ by observing political signals
Government chooses policy $n \in \{0,1,\ldots,N\}$

Agents consume

Learning about $\{c^1, \ldots, c^N\}$ revealed

“political shocks”

$g^n =$ impact of policy $n$

$g^0 =$ impact of policy 0

Learning about $g^0 \quad T$

Learning about $g^n \quad \tau$

$\{c^1, \ldots, c^N\}$ revealed

Agents consume
Key Model Implications

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

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

$\Rightarrow$ A policy change is **more likely in a weaker economy** (i.e., when $\tilde{g}_\tau$ is low)
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• **Result: Three Shocks.** Before time \( \tau \), SDF follows the process

\[
\frac{d \pi_t}{\pi_t} = -\gamma \sigma d \tilde{Z}_t + \sigma_{\pi,0} d \tilde{Z}_t + \sum_{n=1}^{N} \sigma_{\pi,n} d \tilde{Z}_{c,t}^n
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- **Political shocks**
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1. Capital shocks: Fluctuations in aggregate capital ($dB_t$)
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2. **Impact** shocks: Learning about current policy impact ($d\tilde{g}_t$)
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1. Capital shocks: Fluctuations in aggregate capital ($dB_t$)
2. Impact shocks: Learning about current policy impact ($d\tilde{g}_t$)
3. Political shocks: Learning about political costs ($d\tilde{c}_t^n$)

- Orthogonal to economic shocks
- $\sigma_{\pi,n} \rightarrow 0$ when $\tilde{g}_t \rightarrow \infty$
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**

The Level of Stock Prices: Economic vs Political Shocks

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Economic conditions ($\hat{g}_t$)

The Equity Risk Premium and Its Components

Source: Pastor and Veronesi (2013) Political Uncertainty and Risk Premia, JFE
Re-interpretation of PV model for Elections

- 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.
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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 $\tau$ 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
Implications for Bonds and Gubernatorial Elections

• How do PV results extend to gubernatorial elections and municipal bonds?
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1. In PV, the risk premium due to political uncertainty stems from the impact of the uncertainty about future policy choices on the current SDF.
   - Why would uncertainty about state governors’ election affect the SDF?
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• Why would uncertainty about state governors’ election affect the SDF?

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

(a.1) Relative size of state (here) would matter.

⇒ Are the results stronger for e.g. California than for Nebraska?
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(b) Market segmentation: investors in municipal bonds have their wealth tied to same state wealth.

⇒ Who are the marginal investors in municipal bonds?
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- Let government issue $D$ of zero-coupon debt at time $t$ with maturity $t_b$.
- At time $t_b$, the government raises taxes on wealth $W_{t_b}$. Tax is known at $t$.
  - If $\text{tax} \times W_{t_b} > D \implies \text{bond holders get } D$.
  - If $\text{tax} \times W_{t_b} < D$, then there is bankruptcy. $\implies \text{bond holders get whatever can be obtained from the government, say } \text{tax} \times W_{t_b}$. 
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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

$$\implies \frac{\text{BondPrice}}{D} = 1 - \frac{\text{tax}}{D} E \left[ \frac{\pi_{t_b}}{\pi_t} \max(D \frac{D}{\text{tax}} - W_{t_b}, 0) \right]$$

$$= 1 - \frac{\text{tax}}{D} \text{Put} \left( [\hat{g}_t, \hat{C}^H_t, \hat{C}^L_t], \frac{D}{\text{tax}}, t_b - t \right)$$
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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 $D/GDP = 10\%$ $\implies D = 10\% \times \mu = 1\%$.

• What about taxes? This is the tax that only goes to repay debt, and not to pay other government spending. So, let’s say $tax = 1\%$. $\implies tax/D = 1$
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Yield Spread and Market Conditions
Implications for Bonds and Gubernatorial Elections

- 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
Implications for Bonds and Gubernatorial Elections

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

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

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Yield Spread (with and without risk premium) and Policy Uncertainty
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4. Higher debt for given tax capacity implies higher spreads in bad times, but similar in good times.

- Risk premium kicks in bad times, which increases credit spreads especially for high Debt/GDP states
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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 ⇒ 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”.