Political Uncertainty and Risk Premia

Ľuboš Pástor

and

Pietro Veronesi

Booth School of Business
University of Chicago
NBER, CEPR
Motivation

- Political news moves markets
  - E.g., Eurozone debt crisis, U.S. debt ceiling talks, etc.
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• Political news moves markets
  – E.g., Eurozone debt crisis, U.S. debt ceiling talks, etc.

• Yet, no role for political news in finance theory
• We develop a model in which political news moves asset prices
• We develop a model in which **political news** moves asset prices

• Our general equilibrium model features
  – **Government** with economic and non-economic motives
• We develop a model in which **political news** moves asset prices

• Our general equilibrium model features
  
  – **Government** with economic and non-economic motives
  
  – **Uncertainty** about government policy
    
    1. “Political” uncertainty
    2. “Impact” uncertainty

  * We do not know what the government is going to do, nor what the impact of its actions is going to be
• Political uncertainty commands a **risk premium**
  – This premium is larger in poorer economic conditions
Main Results

- Political uncertainty commands a risk premium
  - This premium is larger in poorer economic conditions

- Political uncertainty reduces the value of the “put protection” that the government implicitly provides to the market
  - Government’s ability to change policy can ↑ or ↓ stock prices
Main Results

- Political uncertainty commands a **risk premium**
  - This premium is larger in poorer economic conditions

- Political uncertainty reduces the value of the "**put protection**" that the government implicitly provides to the market
  - Government’s ability to change policy can ↑ or ↓ stock prices

- Political uncertainty raises stock **volatilities** and **correlations**
  - Especially when economic conditions are poor and there is much heterogeneity in the government’s policy choices
Model

- Finite horizon \([0, T]\); continuum of equity-financed firms \(i \in [0, 1]\)
- Firm \(i\)'s profitability (growth rate of capital):

\[
\frac{dB_t^i}{B_t^i} = (\mu + g_t) \, dt + \sigma dZ_t + \sigma_1 dZ_{i,t}
\]

\(g_t = \text{impact}\) of government policy on average profitability
• Finite horizon \([0, T]\); continuum of equity-financed firms \(i \in [0, 1]\)

• Firm \(i\)'s profitability (\(=\) growth rate of capital):

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\]

\(g_t = \textbf{impact}\) of government policy on average profitability

• Government can \textbf{change policy} at time \(\tau, \ 0 < \tau < T\),

choosing from \(N\) potential new policies

\[
g_t = \begin{cases} 
    g^0 & \text{for } t \leq \tau \\
    g^0 & \text{for } t > \tau \quad \text{if old policy is retained} \\
    g^n & \text{for } t > \tau \quad \text{if new policy } n \text{ is chosen, } n \in \{1, \ldots, N\}
\end{cases}
\]
$g^0 =$ impact of policy 0

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

Government chooses policy $n \in \{0, 1, \ldots, N\}$

Agents consume

Impact Uncertainty

- Both $g^0$ and $g^n$ are unknown
Impact Uncertainty

• Both $g^0$ and $g^n$ are unknown

• Prior beliefs:

\[
g^0 \sim N \left(0, \sigma_g^2\right) \\
g^n \sim N \left(\mu_g^n, \sigma_{g,n}^2\right) \quad \text{for } n = 1, \ldots, N
\]
Impact Uncertainty

- Both $g^0$ and $g^n$ are **unknown**

- **Prior** beliefs:

  $g^0 \sim N(0, \sigma_g^2)$

  $g^n \sim N(\mu_g^n, \sigma_{g,n}^2)$ for $n = 1, \ldots, N$

- **Posterior** beliefs:

  $g_t \sim N(\bar{g}_t, \bar{\sigma}_t^2)$
Impact Uncertainty

- Both $g^0$ and $g^n$ are unknown
- Prior beliefs:
  
  \[ g^0 \sim N \left( 0, \sigma_g^2 \right) \]
  \[ g^n \sim N \left( \mu^n_g, \sigma_{g,n}^2 \right) \quad \text{for } n = 1, \ldots, N \]

- Posterior beliefs:

  \[ g_t \sim N \left( \bar{g}_t, \bar{\sigma}_t^2 \right) \]

  - For $g^0$ at time $t \leq \tau$:
    \[ d\bar{g}_t = \bar{\sigma}_t^2 \sigma^{-1} d\bar{Z}_t, \quad \bar{\sigma}_t^2 = \left( \frac{1}{\sigma_g^2} + \frac{t}{\sigma^2} \right)^{-1} \]
Impact Uncertainty

- Both $g^0$ and $g^n$ are **unknown**

- **Prior** beliefs:
  
  \[
  g^0 \sim N \left( 0, \sigma_{g}^2 \right) \\
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  \]

- **Posterior** beliefs:
  
  \[
  g_t \sim N \left( \hat{g}_t, \hat{\sigma}^2_t \right)
  \]

  - For $g^0$ at time $t \leq \tau$:  
    \[
    d\hat{g}_t = \hat{\sigma}^2_t \sigma^{-1} d\tilde{Z}_t, \quad \hat{\sigma}^2_t = \left( \frac{1}{\sigma^2_g} + \frac{t}{\sigma^2} \right)^{-1}
    \]

- **Policy change** ⇒ Beliefs change from posterior of $g^0$ to prior of $g^n$
Government chooses policy \( n \in \{0,1,\ldots,N\} \)
Political Uncertainty
Political Uncertainty

• Investors maximize $E \left\{ \frac{W_T^{1-\gamma}}{1-\gamma} \right\}$, where $\gamma > 1$, $W_T = \int_0^1 B^i_T di$
Political Uncertainty

- Investors maximize $E\left\{ \frac{W_T^{1-\gamma}}{1-\gamma} \right\}$, where $\gamma > 1$, $W_T = \int_0^1 B_T^i di$

- “Quasi-benevolent” government maximizes

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

$C^n = \textit{political cost}$ of choosing policy $n$; we set $C^0 = 1$
$(C^n > 1 \Rightarrow \text{cost}; C^n < 1 \Rightarrow \text{benefit})$
In the document, investors maximize the expected utility of their wealth, given by
\[ \text{E}\left\{ \frac{W_T^{1-\gamma}}{1-\gamma} \right\}, \quad \text{where } \gamma > 1, \quad W_T = \int_0^1 B_T^i di \]

A "quasi-benevolent" government maximizes the expected utility of its policies, considering the political costs associated with each policy. The political cost, denoted as \( C^n \), is the cost of choosing policy \( n \); we set \( C^0 = 1 \). If \( C^n > 1 \) then the cost is indicated; if \( C^n < 1 \) then it is considered a benefit.

\( C^n \) is unknown for \( n = 1, \ldots, N \) before time \( \tau \).

Uncertainty about \( C^n \) is referred to as political uncertainty.
Political Uncertainty

• Investors maximize $E \left\{ \frac{W_T^{1-\gamma}}{1-\gamma} \right\}$, where $\gamma > 1$, $W_T = \int_0^1 B_T^i di$

• “Quasi-benevolent” government maximizes

$$\max_{n \in \{0,1,...,N\}} E_\tau \left[ \frac{C^n W_T^{1-\gamma}}{1-\gamma} \right] \text{ | policy } n$$

$C^n = \text{political cost}$ of choosing policy $n$; we set $C^0 = 1$

($C^n > 1 \Rightarrow \text{cost}; C^n < 1 \Rightarrow \text{benefit}$)

• $C^n$ is unknown for $n = 1, \ldots, N$ before time $\tau$

  – Uncertainty about $C^n = \text{political uncertainty}$

• Prior beliefs: $c^n = \log(C^n) \sim N \left( -\frac{1}{2}\sigma_c^2, \sigma_c^2 \right) \Rightarrow E_0 [C^n] = 1$
Learning about Political Costs

- For \( t \in (t_0, \tau) \), agents observe signals about \( C^n \):
  \[
  ds^n_t = c^n \, dt + h \, dZ^n_{c,t} \quad \text{for } n = 1, \ldots, N
  \]
  
  - Steady flow of political news
Learning about Political Costs

- For $t \in (t_0, \tau)$, agents observe signals about $C^n$:
  \[ ds^n_t = c^n dt + h \, dZ^n_{c,t} \quad \text{for } n = 1, \ldots, N \]
  - Steady flow of political news

- **Posterior** beliefs:
  \[ c^n \sim N \left( \hat{c}^n_t, \hat{\sigma}^2_{c,t} \right) \]
  where \[ d\hat{c}^n_t = \sigma^2_{c,t} h^{-1} d\hat{Z}^n_{c,t}, \quad \sigma^2_{c,t} = \left( \frac{1}{\sigma^2_c} + \frac{t-t_0}{h^2} \right)^{-1} \]
Learning about Political Costs

• For $t \in (t_0, \tau)$, agents observe signals about $C^n$:

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  – Steady flow of political news

• **Posterior** beliefs:

$$c^n \sim N \left( \tilde{c}^n_t, \tilde{\sigma}^2_{c,t} \right)$$

where

$$d\tilde{c}^n_t = \tilde{\sigma}^2_{c,t} \, h^{-1} d\tilde{Z}^n_{c,t}, \quad \tilde{\sigma}^2_{c,t} = \left( \frac{1}{\sigma^2_c} + \frac{t-t_0}{h^2} \right)^{-1}$$

• $d\tilde{Z}^n_{c,t} =$ **political shocks**

  – Orthogonal to economic shocks $dZ_t, dZ_{i,t}$
Learning about \(\{c^1, \ldots, c^N\}\) revealed

\(\text{"political shocks"}\)

\(\{c^1, \ldots, c^N\}\) revealed

Government chooses policy \(n \in \{0, 1, \ldots, N\}\)

Agents consume
• **Result:** Given any two policies \( m, n \in \{0, 1, \ldots, N\} \),

\[
E_\tau \left[ \frac{W_T^{1-\gamma}}{1-\gamma} \mid \text{policy } m \right] > E_\tau \left[ \frac{W_T^{1-\gamma}}{1-\gamma} \mid \text{policy } n \right] \iff \tilde{\mu}^m > \tilde{\mu}^n
\]
• **Result:** Given any two policies $m, n \in \{0, 1, \ldots, N\}$,

$$E_\tau \left[ W_T^{1-\gamma} \right]_{\text{policy } m} > E_\tau \left[ W_T^{1-\gamma} \right]_{\text{policy } n} \iff \tilde{\mu}^m > \tilde{\mu}^n$$

where $\tilde{\mu}^n = \text{utility score}$ of policy $n$:

$$\tilde{\mu}^n = \mu^n - \frac{\sigma^2_{g,n}}{2} (T - \tau) (\gamma - 1) \quad n = 1, \ldots, N$$

$$\tilde{\mu}^0 = \tilde{g}_\tau - \frac{\sigma^2_\tau}{2} (T - \tau) (\gamma - 1)$$

$\Rightarrow$ Higher mean and lower variance of $g$ deliver more utility
• **Result:** Given any two policies \( m, n \in \{0, 1, \ldots, N\} \),

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\]

\[
\bar{\mu}^0 = \bar{g}_\tau - \frac{\sigma_\tau^2}{2} (T - \tau) (\gamma - 1)
\]

\( \Rightarrow \) **Higher mean and lower variance** of \( g \) deliver **more utility**
• **Result:** Government chooses the policy \( n \in \{0, 1, \ldots, N\} \) whose value of \( \tilde{\mu}^n - \tilde{c}^n \) is the largest, where \( \tilde{c}^n = \frac{c^n}{(\gamma - 1)(T - \tau)} \).
Optimal Government Policy Choice

• **Result:** Government chooses the policy \( n \in \{0, 1, \ldots, N\} \) whose value of \( \bar{\mu}^n - \bar{c}^n \) is the largest, where \( \bar{c}^n = \frac{c^n}{(\gamma - 1)} (T - \tau) \)

• **Corollary:** Government changes its policy iff

\[
\hat{g}_\tau < \max_{n \in \{1, \ldots, N\}} \{\bar{\mu}^n - \bar{c}^n\} + \frac{\bar{\sigma}_T^2}{2} (T - \tau) (\gamma - 1)
\]

i.e., if the current policy is perceived as sufficiently unproductive

\( \Rightarrow \) Government provides “*put protection*” to the market
Optimal Government Policy Choice

- **Result:** Government chooses the policy \( n \in \{0, 1, \ldots, N\} \) whose value of \( \tilde{\mu}^n - \tilde{c}^n \) is the largest, where \( \tilde{c}^n = c^n / (\gamma - 1) (T - \tau) \)

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\]

i.e., if the current policy is perceived as sufficiently unproductive

\( \Rightarrow \) Government provides "put protection" to the market

- Investors don’t know \( c^n \) \( \Rightarrow \) cannot fully anticipate a policy change
Stock Prices

- Firm $i$’s stock is a claim on the firm’s liquidating dividend $B_T^i$.
- Market value of stock $i$:
  \[ M_t^i = E_t \left[ \frac{\pi_T}{\pi_t} B_T^i \right] \]
- Complete markets $\Rightarrow$ State price density:
  \[ \pi_t = \frac{1}{\lambda} E_t \left[ W_T^{-\gamma} \right] , \quad \text{where} \quad W_T = \frac{1}{0} B_T^i di \]
- Risk-free bond as numeraire (or risk-free rate $= 0$)
Three Types of Shocks

- **Result:** Before time $\tau$, SDF follows the process

$$\frac{d\pi_t}{\pi_t} = -\gamma \sigma d\tilde{Z}_t + \sigma_{\pi,0} d\tilde{Z}_t + \sum_{n=1}^{N} \sigma_{\pi,n} d\tilde{Z}_{c,t}^n$$

- Capital shocks
- Impact shocks
- Political shocks
Three Types of Shocks

- **Result:** Before time $\tau$, SDF follows the process

\[
\frac{d\pi_t}{\pi_t} = -\gamma \sigma d\tilde{Z}_t + \sigma_{\pi,0} d\tilde{Z}_t \quad + \quad \sum_{n=1}^{N} \sigma_{\pi,n} d\tilde{Z}_{c,t}^n
\]

1. **Capital shocks:** Fluctuations in aggregate capital ($dB_t$)
Three Types of Shocks

• **Result:** Before time $\tau$, SDF follows the process

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\]

1. **Capital** shocks: Fluctuations in aggregate capital ($dB_t$)
2. **Impact** shocks: Learning about policy impact ($d\tilde{g}_t$)
Three Types of Shocks

• **Result:** Before time $\tau$, SDF follows the process

$$\frac{d\pi_t}{\pi_t} = -\gamma \sigma d\hat{Z}_t + \sigma_{\pi,0}d\hat{Z}_t + \sum_{n=1}^{N} \sigma_{\pi,n}d\hat{Z}^n_{c,t}$$

1. **Capital** shocks: Fluctuations in aggregate capital ($dB_t$)
2. **Impact** shocks: Learning about policy impact ($d\hat{g}_t$)
   - Capital + Impact shocks = **Economic** shocks ($d\hat{Z}_t$)
Three Types of Shocks

- **Result**: Before time $\tau$, SDF follows the process

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1. **Capital** shocks: Fluctuations in aggregate capital ($dB_t$)
2. **Impact** shocks: Learning about policy impact ($d\tilde{g}_t$)
   - Capital + Impact shocks = **Economic** shocks ($d\tilde{Z}_t$)

3. **Political** shocks: Learning about political costs ($d\tilde{c}_t^n$)
   - Orthogonal to economic shocks
   - $\sigma_{\pi,n} \to 0$ when $\tilde{g}_t \to \infty$
The Equity Risk Premium and Its Components

**Result:** Stock returns of firm $i$ at time $t \leq \tau$ follow

\[
\frac{dM_t^i}{M_t^i} = \mu_M^i dt + (\sigma + \sigma_M,0) d\tilde{Z}_t + \sum_{n=1}^{N} \sigma_{M,n} d\tilde{Z}_{c,t} + \sigma_1 dZ_t^i,
\]

where the expected stock return is

\[
\mu_M^i = \begin{array}{c}
\gamma \sigma^2 \\
\text{Capital shocks}
\end{array} + \begin{array}{c}
(\gamma \sigma \sigma_{M,0} - \sigma \sigma_{\pi,0} - \sigma_M,0 \sigma_{\pi,0}) \\
\text{Impact shocks}
\end{array} - \begin{array}{c}
\sum_{n=1}^{N} \sigma_{\pi,n} \sigma_{M,n} \\
\text{Political shocks}
\end{array} - \begin{array}{c}
\text{Economic shocks}
\end{array}
\]
A Two-Policy Example

- Consider policies H and L, with $\sigma_{g,H} > \sigma_{g,L}$

- Choose $\mu_{g,H} > \mu_{g,L}$ so that both policies yield same utility

- Parameters:

<table>
<thead>
<tr>
<th>$\sigma_g$</th>
<th>$\sigma_c$</th>
<th>$\mu$</th>
<th>$\sigma$</th>
<th>$\sigma_1$</th>
<th>$T$</th>
<th>$\tau$</th>
<th>$\gamma$</th>
<th>$h$</th>
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<tr>
<td>2%</td>
<td>10%</td>
<td>10%</td>
<td>5%</td>
<td>10%</td>
<td>20</td>
<td>10</td>
<td>5</td>
<td>5%</td>
<td>1%</td>
<td>3%</td>
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</table>
The Level of Stock Prices: Economic vs Political Shocks

![Graph showing the relationship between Economic conditions (\(\hat{g}_t\)) and M/B ratio with different policy scenarios.]
The Level of Stock Prices: Economic vs Political Shocks

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

- New risky policy more likely
- New policies equally likely
- New safe policy more likely

M/B
The Level of Stock Prices: Economic vs Political Shocks

- New risky policy more likely
- New policies equally likely
- New safe policy more likely

Economic conditions ($g_t$)

M/B

Learning about old policy impact

Implicit “put” protection

-0.02 -0.015 -0.01 -0.005 0 0.005 0.01 0.015 0.02
The Level of Stock Prices: Economic vs Political Shocks

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

- $M/B$

- New risky policy more likely
- New policies equally likely
- New safe policy more likely

Learning about political costs
Learning about old policy impact
The Equity Risk Premium and Its Components

The diagram illustrates the relationship between economic conditions and the equity risk premium. It shows how different types of shocks (capital, impact, and political) affect the risk premium over time. The x-axis represents economic conditions (\( \hat{g}_t \)) ranging from -0.02 to 0.02, while the y-axis represents the percent per year of the equity risk premium.
Economic conditions (\( \hat{g}_t \))

Percent per year

A. \( \sigma_g = 1\% \)

B. \( \sigma_g = 3\% \)

C. \( \sigma_c = 5\% \)

D. \( \sigma_c = 20\% \)

Capital shocks
Impact shocks
Political shocks
A. $h = 2.5\%$

B. $h = 10\%$

C. $\tau - t = 1.5$

D. $\tau - t = 0.5$
The Effect of Policy Heterogeneity

- Heterogeneity $\mathcal{H} = \sigma_{g,H} - \sigma_{g,L}$
- Three values: $\mathcal{H} = 1\%, 2\%, 3\%$

- To vary $\mathcal{H}$, we vary $\sigma_{g,H}$ and $\sigma_{g,L}$ keeping other parameters fixed
- Both policies $H$ and $L$ deliver the same utility
Policy Changes Allowed vs Precluded

A. Total Risk Premium

B. Market-to-Book Ratio

C. Return Volatility

D. Correlation
Stock Market Reaction to the Policy Announcement

- **Result:** Closed-form solution for announcement return $R^n(g_{\tau})$

- **Corollary:** For any pair of policies $m, n \in \{0, 1, \ldots, N\}$,

$$
1 + \frac{R^m(g_{\tau})}{1 + R^n(g_{\tau})} = e^{(\mu^m - \mu^n)(T-\tau)-\frac{\gamma}{2}(T-\tau)^2(\sigma^2_{g,m} - \sigma^2_{g,n})}
$$
Stock Market Reaction to the Policy Announcement

- **Result:** Closed-form solution for announcement return $R^n(\tilde{g}_\tau)$

- **Corollary:** For any pair of policies $m, n \in \{0, 1, \ldots, N\}$,

\[
\frac{1 + R^m(\tilde{g}_\tau)}{1 + R^n(\tilde{g}_\tau)} = e^{(\tilde{\mu}^m - \tilde{\mu}^n)(T-\tau) - \frac{\gamma}{2}(T-\tau)^2(\sigma^2_{g,m} - \sigma^2_{g,n})}
\]

- Government policies cannot be **judged** by stock market reactions
  - Can have $R^m(x_\tau) < R^n(x_\tau)$ and $\tilde{\mu}^m > \tilde{\mu}^n$, or vice versa
Stock Market Reaction to the Policy Announcement

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- Government policies cannot be **judged** by stock market reactions
  - Can have $R^m(x_\tau) < R^n(x_\tau)$ and $\tilde{\mu}^m > \tilde{\mu}^n$, or vice versa

- If $\tilde{\mu}^m = \tilde{\mu}^n$ and $\sigma_{g,m} > \sigma_{g,n}$, then $R^m(\tilde{g}_\tau) < R^n(\tilde{g}_\tau)$
  - “Deeper reforms” elicit less favorable stock market reactions
• **Result:** Closed-form solution for announcement return $R^n(\tilde{g}_\tau)$

• **Corollary:** For any pair of policies $m, n \in \{0, 1, \ldots, N\}$,

$$\frac{1 + R^m(\tilde{g}_\tau)}{1 + R^n(\tilde{g}_\tau)} = e^{(\bar{\mu}^m - \bar{\mu}^n)(T-\tau) - \frac{\gamma}{2}(T-\tau)^2(\sigma_{g,m}^2 - \sigma_{g,n}^2)}$$

• Government policies cannot be judged by stock market reactions
  - Can have $R^m(x_\tau) < R^n(x_\tau)$ and $\bar{\mu}^m > \bar{\mu}^n$, or vice versa

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  - “Deeper reforms” elicit less favorable stock market reactions

• **Note:** $M_t = \frac{1-\gamma}{\lambda \pi_t} E_t \left[ \frac{W^1_T}{1-\gamma} \right]$. A policy change can affect $\pi_t$. 
The Jump Risk Premium

- Stock prices jump at the policy announcement at time $\tau$

- Expected stock return at time $\tau = \text{Compensation for jump risk}$
  - Covariance between jumps in market value and SDF
  - Closed-form solution for the jump risk premium
A. Jump Risk Premium

B. Probability of Retaining the Old Policy
Empirical Analysis

- Test model’s predictions about political uncertainty (PU)
  - PU is higher in weaker economic conditions
  - PU commands a risk premium, larger when economy is weak
  - PU makes stocks more volatile and more correlated, especially when the economy is weak
Empirical Analysis

- Test model’s predictions about political uncertainty (PU)
  - PU is higher in weaker economic conditions
  - PU commands a risk premium, larger when economy is weak
  - PU makes stocks more volatile and more correlated, especially when the economy is weak

- Proxy for PU: Baker, Bloom, and Davis (2011)
  - Weighted average of 3 components:
    * News coverage of policy-related uncertainty
    * Number of expiring federal tax code provisions
    * Disagreement among forecasters of inflation and govt spending
Panel A. Political Uncertainty vs Stock Correlation

Panel B. Political Uncertainty vs Stock Volatility
Is PU Higher in a Weaker Economy?

Table reports estimates of $b$ and their $t$-statistics for

Specification 1: $PU_t = a + bE_t + e_t$

Specification 2: $PU_t = a + bE_t + cPU_{t-1} + e_t$

<table>
<thead>
<tr>
<th>Measure of Economic Conditions</th>
<th>CFI</th>
<th>-REC</th>
<th>IPG</th>
<th>P/E</th>
<th>-DEF</th>
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<td>(-3.06)</td>
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</tbody>
</table>
Table reports estimates of $b$ and their $t$-statistics for

Specification 1:  \[ VC_t = a + bPU_t + e_t \]
Specification 2:  \[ VC_t = a + bPU_t + cVC_{t-1} + e_t \]

<table>
<thead>
<tr>
<th>Specification</th>
<th>Correlation</th>
<th>Volatility</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EW</td>
<td>VW</td>
<td>Realized</td>
<td>Implied</td>
</tr>
<tr>
<td>Specification 1</td>
<td>0.17</td>
<td>0.15</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>(9.81)</td>
<td>(7.25)</td>
<td>(4.81)</td>
<td>(5.27)</td>
</tr>
<tr>
<td>Specification 2</td>
<td>0.09</td>
<td>0.07</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>(6.43)</td>
<td>(5.14)</td>
<td>(3.45)</td>
<td>(2.53)</td>
</tr>
</tbody>
</table>
Are VOL and COR More Linked to PU in a Weaker Economy?

Table reports estimates of $b$ and their $t$-statistics for

Specification 1: \[ VC_t = a + bPU_tE_t + cPU_t + dE_t + e_t \]

<table>
<thead>
<tr>
<th>Measure of Economic Conditions</th>
<th>CFI</th>
<th>-REC</th>
<th>IPG</th>
<th>P/E</th>
<th>-DEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation: EW</td>
<td>-0.03</td>
<td>-0.04</td>
<td>-3.53</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-2.41)</td>
<td>(-0.96)</td>
<td>(-2.36)</td>
<td>(-0.00)</td>
<td>(-0.08)</td>
</tr>
<tr>
<td>Correlation: VW</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-3.54</td>
<td>-0.00</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>(-1.92)</td>
<td>(-0.60)</td>
<td>(-2.03)</td>
<td>(-0.26)</td>
<td>(1.28)</td>
</tr>
<tr>
<td>Volatility: Realized</td>
<td>-0.00</td>
<td>-0.01</td>
<td>-0.39</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-5.46)</td>
<td>(-4.39)</td>
<td>(-4.52)</td>
<td>(-3.74)</td>
<td>(-3.17)</td>
</tr>
<tr>
<td>Volatility: Implied</td>
<td>-0.04</td>
<td>-0.12</td>
<td>-3.48</td>
<td>-0.01</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>(-4.50)</td>
<td>(-3.69)</td>
<td>(-3.18)</td>
<td>(-5.48)</td>
<td>(-1.91)</td>
</tr>
</tbody>
</table>
Are VOL and COR More Linked to PU in a Weaker Economy?

Table reports estimates of $b$ and their $t$-statistics for

$$VC_t = a + bPU_tE_t + cPU_t + dE_t + eVC_{t-1} + \epsilon_t$$

<table>
<thead>
<tr>
<th>Measure of Economic Conditions</th>
<th>CFI</th>
<th>-REC</th>
<th>IPG</th>
<th>P/E</th>
<th>-DEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation: EW</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-2.35</td>
<td>0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-2.04)</td>
<td>(-1.07)</td>
<td>(-1.97)</td>
<td>(0.05)</td>
<td>(-0.05)</td>
</tr>
<tr>
<td>Correlation: VW</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-2.04</td>
<td>-0.00</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>(-1.48)</td>
<td>(-0.79)</td>
<td>(-1.54)</td>
<td>(-0.10)</td>
<td>(1.13)</td>
</tr>
<tr>
<td>Volatility: Realized</td>
<td>-0.00</td>
<td>-0.01</td>
<td>-0.21</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-4.11)</td>
<td>(-3.86)</td>
<td>(-3.11)</td>
<td>(-2.77)</td>
<td>(-2.58)</td>
</tr>
<tr>
<td>Volatility: Implied</td>
<td>-0.01</td>
<td>-0.05</td>
<td>-0.19</td>
<td>-0.00</td>
<td>-0.03</td>
</tr>
<tr>
<td></td>
<td>(-2.81)</td>
<td>(-3.71)</td>
<td>(-0.36)</td>
<td>(-2.76)</td>
<td>(-2.70)</td>
</tr>
</tbody>
</table>
Is Political Risk Premium Higher in a Weaker Economy?

Table reports estimates of $b$ and their $t$-statistics for

$$ R_{t+1,t+h} = a + bPU_t E_t + cPU_t + dE_t + e_t. $$

<table>
<thead>
<tr>
<th>Horizon</th>
<th>CFI</th>
<th>-REC</th>
<th>IPG</th>
<th>P/E</th>
<th>-DEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
<td>-0.02</td>
<td>-0.05</td>
<td>-0.89</td>
<td>-0.01</td>
<td>-0.03</td>
</tr>
<tr>
<td></td>
<td>(-1.30)</td>
<td>(-1.24)</td>
<td>(-0.71)</td>
<td>(-2.17)</td>
<td>(-1.19)</td>
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<tr>
<td>6 months</td>
<td>-0.04</td>
<td>-0.11</td>
<td>-2.50</td>
<td>-0.01</td>
<td>-0.09</td>
</tr>
<tr>
<td></td>
<td>(-2.09)</td>
<td>(-1.53)</td>
<td>(-1.17)</td>
<td>(-3.18)</td>
<td>(-1.97)</td>
</tr>
<tr>
<td>12 months</td>
<td>-0.09</td>
<td>-0.21</td>
<td>-6.48</td>
<td>-0.02</td>
<td>-0.15</td>
</tr>
<tr>
<td></td>
<td>(-2.41)</td>
<td>(-1.78)</td>
<td>(-1.76)</td>
<td>(-2.85)</td>
<td>(-1.69)</td>
</tr>
</tbody>
</table>
• We develop a theory in which political news moves stock prices

• Political uncertainty
  – commands a risk premium that is larger in a weaker economy
  – reduces the value of the government’s implicit put protection
  – increases stock volatilities and correlations, especially when the economy is weak and policy heterogeneity is large
Comparison with Pástor and Veronesi (JF 2012), or PV

• Different modeling
  – We: **Heterogeneous policies**
  – PV: All new policies identical a priori: $\mu^g_n = 0, \sigma^2_{g,n} = \sigma^2_g \ \forall n$
  – We: **Learning about political costs** $\Rightarrow$ political shocks
  – PV: No such learning

• Different **focus**
  – We: Risk premium induced by political uncertainty
  – PV: Stock market response to a policy change

• Main result of PV:
  Stock prices **fall** at announcements of policy changes, on average