Firm-Level Political Risk

Measurement and Effects

Tarek A. Hassan
Boston University, NBER, and CEPR

Stephan Hollander
Tilburg University

Laurence van Lent
Frankfurt School of Finance

Ahmed Tahoun
London Business School

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This paper

- Develop a novel, firm-level, measure of political risk based on textual analysis of conference call transcripts.
- Quantify role of aggregate vs. firm-level political risk.
- Study association with firm-level outcomes: stock market volatility, hiring, and political donations.
- Use same methodology to construct a measure of the mean of political news.
- Decompose political risk by topic.

Conference Call Transcripts

- Complete transcripts of 175,797 earnings conference calls of US listed firms 2002-16 from Thomson-Reuters.
- Typically four calls per year, after earnings releases.
- Management presentation followed by Q&A with firm's analysts (0-70 questions, average duration 45 min).

What share of the conversation between management and participants centers on risks associated with political topics?

Measuring Overall Political Risk

1. Extract all two-word combinations ("bigrams") from training libraries that are indicative of discussion of political topics, $\mathbb{P}$, and non-political topics $\mathbb{N}$.
2. Count the number of occurrences of (exclusively) political bigrams in conjunction with a synonym for risk or uncertainty and divide by the total number of bigrams in the transcript:

$$PRisk_{it} = \frac{1}{B_{it}} \sum_{b}^{B_{it}} \left\{ 1[b \in \mathbb{P} \backslash \mathbb{N}] \times 1[|b - r| < 10] \times f_{b,\mathbb{P}} / B_{\mathbb{P}} \right\},$$

where r is the position of the nearest synonym of risk or uncertainty and $b = 0, 1, ...B_{it}$ are the bigrams contained in call of firm i at time t. (Application of "$tf \times idf$.")

Topic-based Measures of Political Risk

1. Extract all bigrams from a set of Z training libraries of political topics, $\mathbb{Z} = \{\mathbb{P}_1, ..., \mathbb{P}_Z\}$.
2. Then again count the number of bigrams associated with T used in conjunction with a synonym for risk, but now also weight with inverse document frequency.

$$PRisk_{i,t}^{T} = \frac{1}{B_{i,t}} \sum_{b}^{B_{i,t}} \left(1[b \in \mathbb{P}_T \setminus \mathbb{N}] \times 1[|b - p| < 10] \times \frac{f_{p,\mathbb{P}}}{B_{\mathbb{P}}} \times \frac{f_{b,\mathbb{P}_T}}{B_{\mathbb{P}_T}} \log(Z / f_{b,\mathbb{Z}}) \right)$$

where p is the position of the nearest political bigram, $\mathbb{P}\setminus\mathbb{N}$, that is also within 10 words of a synonym for risk or uncertainty and $f_{b,\mathbb{P}}/B_{\mathbb{P}}$ is its term frequency.

Training Libraries

Non-Political Bigrams, $\mathbb{N}$

- Textbook on financial accounting (Libby, 2011; ▸ cover)
- Santa Barbara Corpus of Spoken American English (non-political topics), Du Bois & al. (2000)

Political Training Libraries $\mathbb{P}, \{\mathbb{P}_T\}$

1. **Overall Political** ($PRisk_{it}$)
   - Textbook on American Politics (Bianco &Canon, 2013; ▸ cover)
   - Political vs non-political newspapers articles; ▸ screenshot
2. **Topic-Based** ($\{PRisk_{it}^{T}\}$)
   - Text contained in 8 topics from OnTheIssues.org ▸ screenshot
   - Contains snippets from newspapers, speeches, press releases, books, voting records, and bill sponsorships identifying where candidates for political office stand on each topic (health care, environment, defense, ...)

Synonyms for “risk” or “uncertainty”

Synonym	Frequency	Synonym	Frequency	Synonym	Frequency	Synonym	Frequency
risk	414274	hazard	4627	unreliable	550	perilous	92
risks	106935	tricky	4359	unsafe	487	tentativeness	85
uncertainty	91813	sticky	4328	hazy	472	unreliability	72
variable	68221	dangerous	4300	apprehension	466	wariness	70
chance	60870	tentative	4019	unforeseeable	466	vagueness	59
possibility	57616	hazardous	3157	halting	453	dodgy	58
pending	53345	queries	2677	wager	446	equivocation	55
uncertainties	51114	danger	2465	torn	437	indecisive	43
uncertain	39225	fluctuating	2463	precarious	363	chancy	40
doubt	39038	unstable	2441	undetermined	349	menace	38
prospect	30934	vague	2427	insecurity	348	qualm	35
bet	21280	erratic	1876	debatable	346	vacillating	33
variability	21228	query	1828	undecided	341	gnarly	32
exposed	19554	jeopardize	1823	dicey	330	disquiet	30
likelihood	19290	unsettled	1664	indecision	324	ambivalence	30
threat	19028	unpredictability	1563	wavering	266	imperil	28
probability	15797	dilemma	1548	iffy	235	vacillation	22
unknown	12053	skepticism	1502	faltering	212	untrustworthy	17
varying	9444	hesitancy	1491	endanger	205	incalculable	17
unclear	9040	riskier	1353	quandary	205	diffident	15
unpredictable	8470	unresolved	1216	insecure	189	equivocating	15
speculative	8135	unsure	1152	changeable	189	fickleness	11
fear	7940	irregular	1124	riskiest	183	misgiving	11
reservation	7033	jeopardy	1078	hairy	177	changeability	11
hesitant	6275	suspicion	1027	ambivalent	169	undependable	9
gamble	6069	risking	863	dubious	158	incertitude	8
risky	5230	peril	660	riskiness	135	fitful	8
instability	4764	hesitating	628	treacherous	130	parlous	8
doubtful	4742	risked	577	oscillating	112	unconfident	6

Single-word synonyms of ‘risk’, ‘risky’, ‘uncertain’, and ‘uncertainty’ from Oxford Dictionary, excluding ‘question’, ‘questions’, and ‘venture’.

Outline

Validation

Firm-Level Political Risk

Topic-Based Measures

Validation

Validate measurement and economic content of $PRisk_{it}$ in five steps.

1. $PRisk_{it}$ **correctly identifies conversations about risks associated with political topics.**
2. Varies intuitively over time and across sectors.
3. Has economic content: associated with outcomes in a way that is highly indicative of reactions to political risk.
4. News about mean versus variance: $PSentiment_{it}$.
5. Falsification exercises using $Risk_{it}$ and $NPRisk_{it}$.

$PRisk_{it}$ identifies conversations about risks associated with political topics.

- Bigrams with highest scores intuitively linked to politics (‘the constitution,’ ‘public opinion,’ ‘interest groups,’ ‘the FAA’ ...)
- Transcripts with highest $PRisk_{it}$ indeed center around discussions about ballot initiatives, legislation, regulation, government expenditure,...

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$PRisk_{it}$ varies intuitively over time and across sectors

- Mean of $PRisk_{it}$ across firms highly correlated with Baker, Bloom and Davis' EPU index (0.821).
- $PRisk_{it}$ significantly higher around federal elections.
- Sectors with highest $PRisk_{it}$ are finance, construction, ...
- Highly significant correlation between the mean of $PRisk_{it}$ across firms in a given sector and an index of regulatory constraints, as well as the share of the sector's revenue accounted for by federal government contracts.

A Fun Example

	Δ PRisk$_{i,t}$ (standardized)	
	(1)	(2)
# of 'brexit'	0.028***	
	(0.006)	
# of 'trump', and ('twitter' or 'tweet')		0.140***
		(0.038)
# of firms with regressor $>$ 0	954	5
Sample period	2016q3	2016q4
R^2	3,573	3,527

Mainly firms doing business in UK talk about Brexit (increase in #brexit of 10 is associated with a 3-fold increase in share of sales in the UK relative to the mean).

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A. Association with stock return volatility

$$y_{it} = \delta_s + \delta_t + \beta PRisk_{it} + \gamma' X_{it} + \epsilon_{it}$$

	Implied volatility$_{i,t}$ (standardized)				
	(1)	(2)	(3)	(4)	(5)
PRisk$_{i,t}$ (standardized)	0.056***	0.034***	0.025***	0.013***	0.016**
	(0.006)	(0.006)	(0.005)	(0.003)	(0.006)
Mean of PRisk$_{i,t}$ (standardized)		0.262***			
		(0.004)			
N	115,059	115,059	115,059	115,059	18,060
Time FE	no	no	yes	yes	yes
Sector FE	no	no	yes	n/a	n/a
Firm FE	no	no	no	yes	yes
CEO FE	no	no	no	no	yes

- *PRisk$_{it}$* significantly associated with higher implied and realized stock return volatility.

Randomization inference ▸ t-statistic distribution

B. Association with employment, investment

	$\frac{I_{i,t}}{K_{i,t-1}} * 100$	$\frac{\Delta \text{capexg}_{i,t}}{\text{capexg}_{i,t-1}} * 100$	$\frac{\Delta \text{emp}_{i,t}}{\text{emp}_{i,t-1}} * 100$	$\frac{\Delta \text{sales}_{i,t}}{\text{sales}_{i,t-1}} * 100$
	(1)	(2)	(3)	(4)
$\text{PRisk}_{i,t}$ (standardized)	–0.159***	–0.338***	–0.769***	–0.075
	(0.041)	(0.120)	(0.155)	(0.094)
N	119,853	22,520	45,930	173,887
Time FE	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes

- Controlling for sector and time effects, higher $PRisk_{it}$ is associated with with lower investment and employment growth, but not sales growth.
- Consistent with reactions to uncertainty predicted by real options literature, “passive” management of political risk (Bernanke (1983), Dixit and Pindyck (1994) and Bloom & al. (2007)).

C. Association with lobbying, donations

	Log(1+$ donations$_{i,t+1}$)	# of recipients$_{i,t+1}$	Log(1+$ lobby$_{i,t+1}$)
	(1)	(2)	(3)
PRisk$_{i,t}$ (standardized)	0.087***	0.462***	0.186***
	(0.018)	(0.118)	(0.027)
N	176,173	176,173	147,228
Time FE	yes	yes	yes
Sector FE	yes	yes	yes

- Controlling for sector and time effects, higher $PRisk_{it}$ is associated with with more expenditure and recipients of donations, more lobbying.
- "Active" management of political risk (Tullock, 1967, Stigler, 1971, and Peltzman 1976).

D. Small versus large firms

- Substitutability of active and passive means of managing political risk.
- Large firms internalize more of the gain from lobbying Olson (1965)

	$\frac{I_{i,t}}{K_{i,t-1}} * 100$	$\frac{\Delta \text{emp}_{i,t}}{\text{emp}_{i,t-1}} * 100$	Log(1+$ donations$_{i,t+1}$)	Log(1+$ lobby$_{i,t+1}$)
	(1)	(2)	(3)	(4)
PRisk$_{i,t}$ (standardized)	–0.223***	–1.064***	0.025	0.168***
	(0.059)	(0.230)	(0.016)	(0.032)
PRisk$_{i,t} \times \mathbb{1}\{\text{assets}_{i,t} > \text{median}\}$	0.149*	0.620**	0.154***	0.085
	(0.081)	(0.289)	(0.039)	(0.056)
N	119,853	45,930	176,173	147,228
Time FE	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes

- Small firms: more passive management
- Large firms: more active management

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4. **News about mean versus variance:** $PSentiment_{it}$**.**
5. Falsification exercises using $Risk_{it}$ and $NPRisk_{it}$.

Measuring news about the mean: $PSentiment_{it}$

Use same approach to measure mean of political news:

- Count positive and negative words ("sentiment") used in conjunction with a political bigram:

$$PSentiment_{i,t} = \frac{1}{B_{it}} \sum_{b}^{B_{it}} \left(1[b \in \mathbb{P} \backslash \mathbb{N}] \times \frac{f_{b,\mathbb{P}}}{B_{\mathbb{P}}} \times \sum_{c=b-10}^{b+10} S(c) \right),$$

where S assigns sentiment to each c (Loughran & McDonald 2011)

$$S(c) = \begin{cases} +1 \text{ if } c \in \mathbb{S}^{+} \\ -1 \text{ if } c \in \mathbb{S}^{-} \\ 0 \text{ otherwise} \end{cases}$$

- Find that $Corr(PRisk_{it}, PSentiment_{it}) = -0.095^{***}$

Measuring news about the mean: $PSentiment_{it}$

Validate $PSentiment_{it}$ by showing that it...

- correctly identifies transcripts with positive/negative political news
- is positively correlated with recent stock returns

News about the variance vs. the mean

	(1)	(2)	(3)	(4)	(5)	(6)
	$\frac{I_{i,t}}{K_{i,t-1}} * 100$			$\frac{\Delta emp_{i,t}}{emp_{i,t-1}} * 100$		
$PRisk_{i,t}$ (standardized)	–0.159***	–0.145***	–0.157***	–0.769***	–0.683***	–0.622***
	(0.041)	(0.041)	(0.046)	(0.155)	(0.156)	(0.163)
$PSentiment_{i,t}$ (standardized)		0.216***			1.181***	
		(0.043)			(0.155)	
Mean stock return 7 days $prior_{i,t}$ (%)			0.025			0.319*
			(0.022)			(0.166)
	Log(1+$ $lobby_{i,t+1}$)			Log(1+$ $donations_{i,t+1}$)		
$PRisk_{i,t}$ (standardized)	0.186***	0.199***	0.217***	0.087***	0.094***	0.100***
	(0.027)	(0.027)	(0.031)	(0.018)	(0.018)	(0.020)
$PSentiment_{i,t}$ (standardized)		0.203***			0.117***	
		(0.032)			(0.022)	
Mean stock return 7 days $prior_{i,t}$ (%)			0.028***			0.012***
			(0.007)			(0.004)
Time FE	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes

- Coefficients of interest remain stable when controlling for the realization of political shocks / news about the mean.

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5. **Falsification exercises using** $Risk_{it}$ **and** $NPRisk_{it}$.

Placebo: Risk vs. Political Risk

- Measure overall risk (political or non-political), counting number of synonyms for risk or uncertainty:

$$Risk_{it} = \frac{\sum_{b}^{B_{it}} 1[r]}{B_{it}},$$

- Measure non-political risk, $NPRisk_{it}$.

#1 $Risk_{it}$ should attenuate $PRisk_{it}$ when predicting investment and employment growth; $NPrisk_{it}$ should have independent effect.

#2 Vice versa for political activities of the firm.

Placebo #1: $PRisk_{it}$ vs. $Risk_{it}$

	$\frac{I_{i,t}}{K_{i,t-1}} * 100$			$\frac{\Delta emp_{i,t}}{emp_{i,t-1}} * 100$		
	(1)	(2)	(3)	(4)	(5)	(6)
$PRisk_{i,t}$ (std)	–0.143***	–0.082**	–0.071	–0.669***	–0.426***	–0.385**
	(0.041)	(0.042)	(0.045)	(0.156)	(0.162)	(0.182)
$NPRisk_{i,t}$ (std)		–0.256***			–0.857***	
		(0.043)			(0.166)	
$Risk_{i,t}$ (std)			–0.138**			–0.516**
			(0.059)			(0.209)
R^2	0.035	0.036	0.035	0.026	0.027	0.026
N	119,853	119,853	119,853	45,930	45,930	45,930
Time FE	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes

All specifications also control for log of firm assets and $PSentiment_{it}$.

Placebo #2: $PRisk_{it}$ vs. $Risk_{it}$

	Log(1+$ lobby$_{i,t+1}$)			Log(1+$ donations$_{i,t+1}$)			# of recipients$_{i,t+1}$		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PRisk$_{i,t}$ (std)	0.199***	0.205***	0.214***	0.095***	0.096***	0.109***	0.495***	0.506***	0.446***
	(0.027)	(0.027)	(0.028)	(0.018)	(0.018)	(0.019)	(0.121)	(0.122)	(0.109)
NPRisk$_{i,t}$ (std)		–0.025			–0.005			–0.045	
		(0.022)			(0.015)			(0.052)	
Risk$_{i,t}$ (std)			–0.028			–0.026			0.092
			(0.037)			(0.027)			(0.101)
R^2	0.269	0.269	0.269	0.251	0.251	0.251	0.148	0.148	0.148
N	147,228	147,228	147,228	176,173	176,173	176,173	176,173	176,173	176,173
Time FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes	yes	yes

All specifications also control for log of firm assets and $PSentiment_{it}$.

Extensions: ▸ alternative constructions of $PRisk_{it}$ ▸ Firm-level EPU_{it}

Outline

Validation

Firm-Level Political Risk

Topic-Based Measures

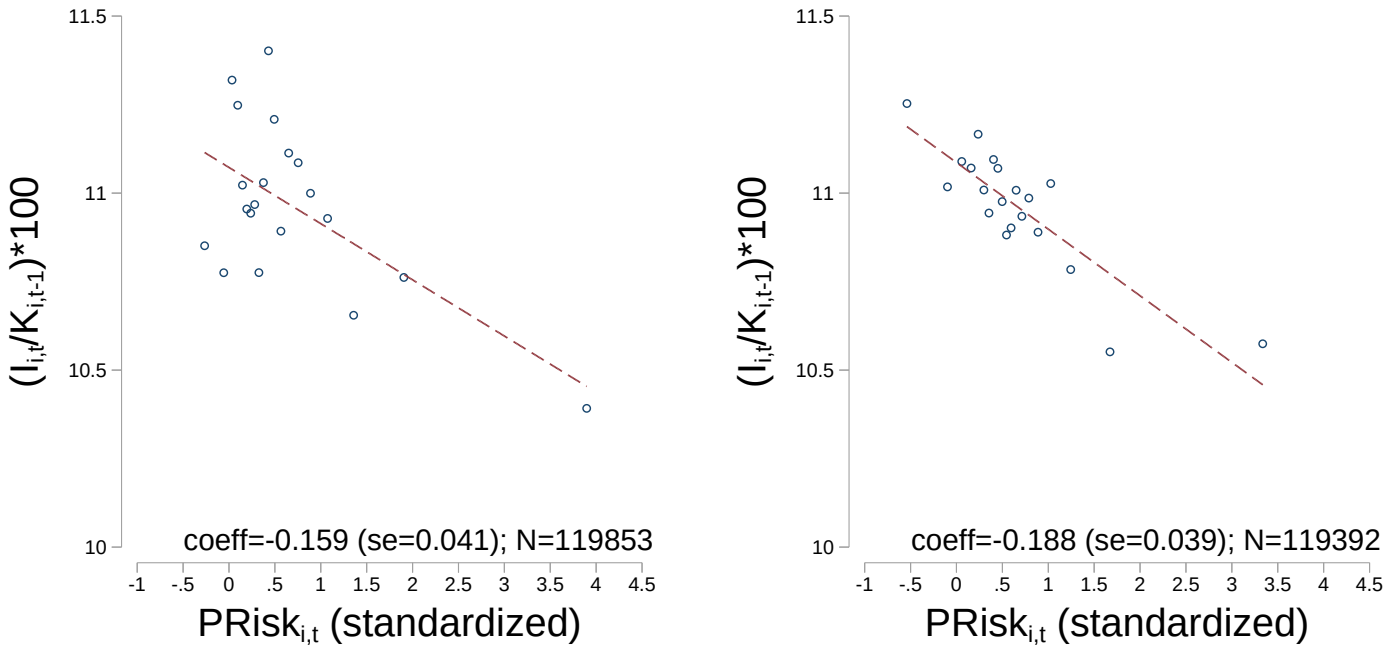
Variance decomposition of $PRisk_{it}$

Time FE (aggregate)	0.81%
Sector FE (SIC 2-digit)	4.38%
Sector $\times$ Time FE	3.12%
"Firm-level"	91.69%
Permanent differences across firms	19.87%
Changes over time in assignment across firms within sector(residual)	71.82%

- Incidence of $PRisk_{it}$ highly volatile and heterogeneous. Large amount of variation within-time-and-sector.
- At odds with conventional view that political and regulatory decisions have relatively uniform impacts across firms in a developed economy.

Economic content vs. measurement error

Added-variable plots: **Investment**



(a) Sector & Time FE (b) Firm & Sector$\times$Time FE

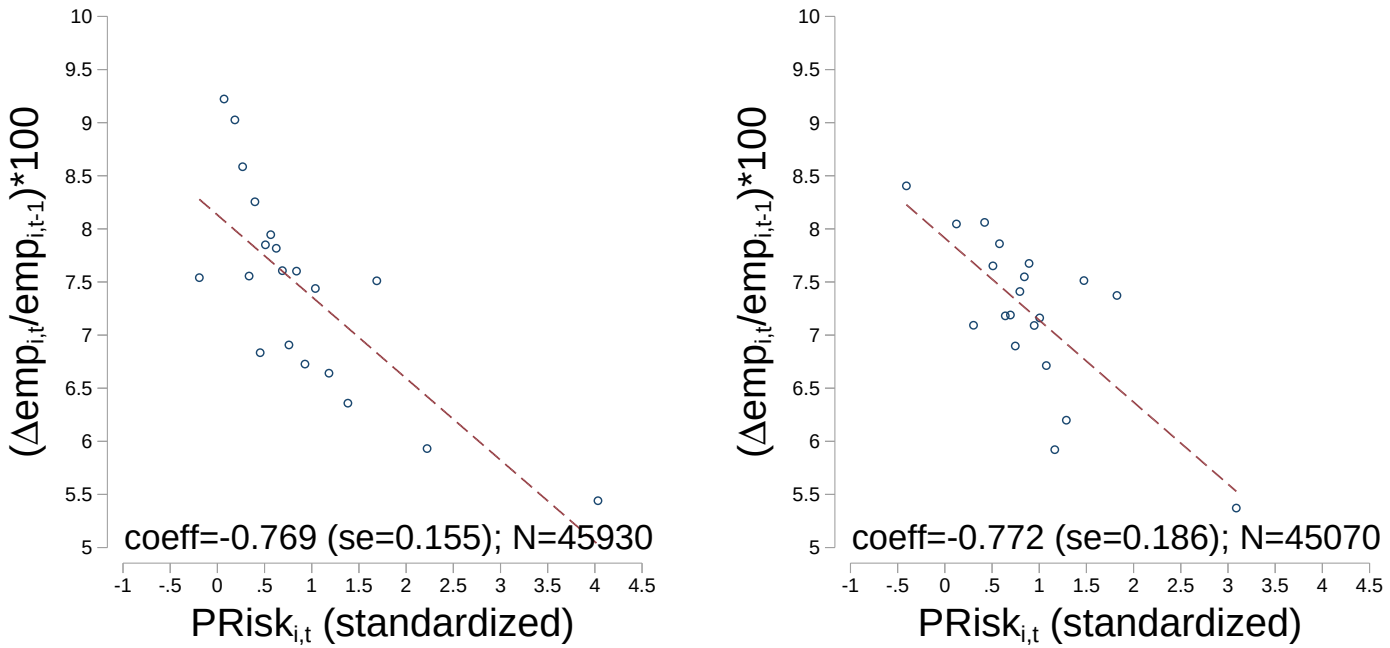
- Most variation in $PRisk_{it}$ is at the firm-level & significantly associated with outcomes we care about!

$\Rightarrow$ Not just measurement error!

▸ Other outcomes

Economic content vs. measurement error

Added-variable plots: **Employment**



(a) Sector & Time FE (b) Firm & Sector×Time FE

- Most variation in $PRisk_{it}$ is at the firm-level & significantly associated with outcomes we care about!

$\Rightarrow$ Not just measurement error!

▸ Other outcomes

Two ways of quantifying measurement error

- Assume "true" political risk follows an AR(1) and that "measured" $PRisk_{it}$ contains classical measurement error.
- Construct $PRisk10K_{it}$ using (annual) 10K disclosure filings and use as an instrument.

-or- Instrument $PRisk_{it}$ with its own lag.

	$\text{PRisk}_{i,t+1}$ (standardized)		
	OLS	IV	IV
$\text{PRisk}_{i,t}$ (standardized)	0.475	0.924	0.813
	(0.005)	(0.033)	(0.011)
Implied Share m.e. (overall)		0.485	0.406
		(0.018)	(0.015)
Implied Share m.e. (firm-level)		0.538	0.445
		(0.025)	(0.017)
Instrument		PRisk10K	L.PRisk

$\Rightarrow$ Implied m.e. typical for firm-level data.

- Only slightly higher in firm-level than overall variation.

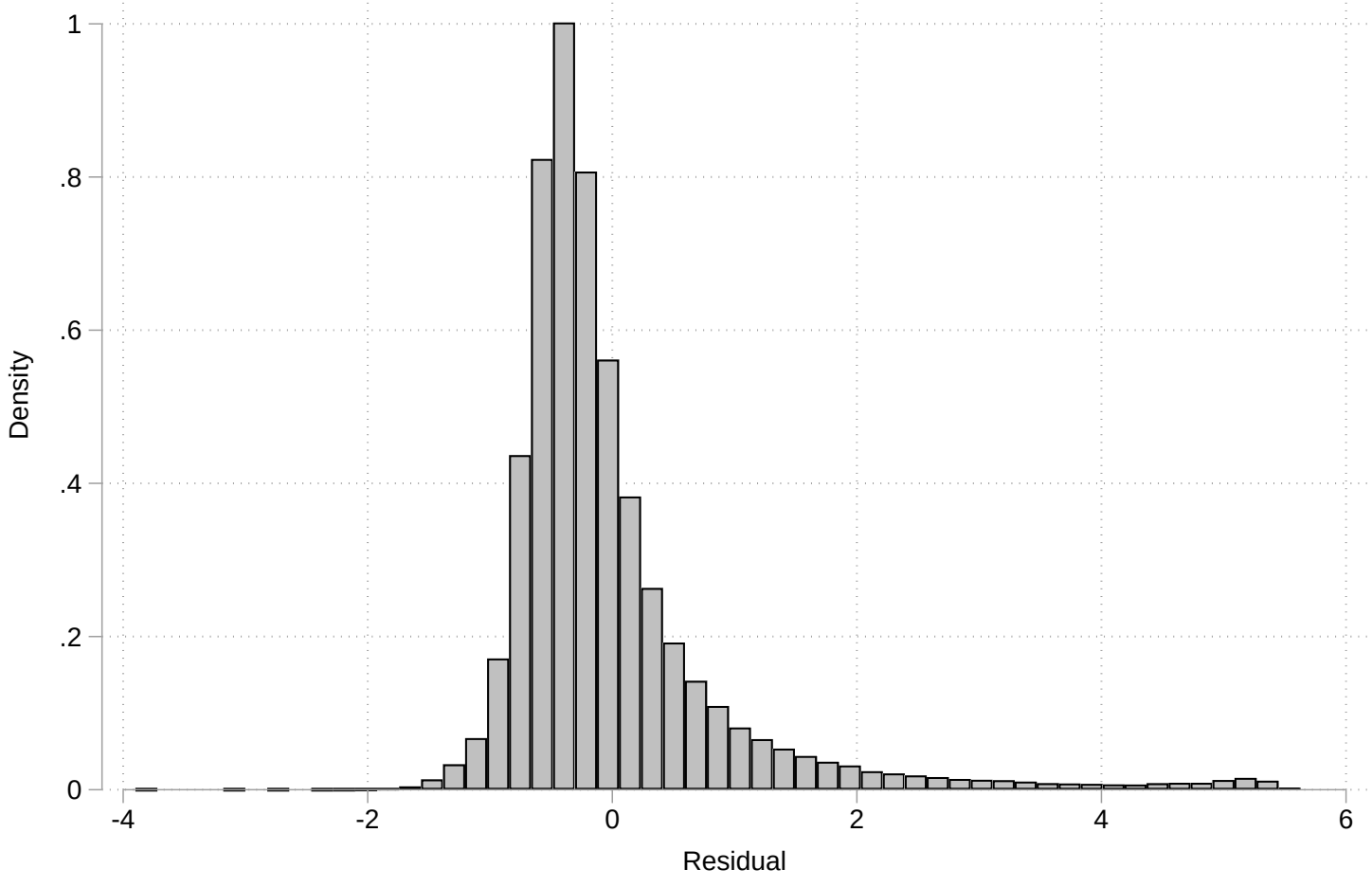
Nature of Firm-level $PRisk_{it}$

	Implied volatility$_{i,t}$ (standardized)				
	(1)	(2)	(3)	(4)	(5)
PRisk$_{i,t}$ (standardized)	0.027***	0.026***	0.026***	0.029***	0.029***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
β_i $\times$ mean of PRisk$_{i,t}$		0.001			
		(0.003)			
$\beta_{i,t}$ (2-year rolling) $\times$ mean of PRisk$_{i,t}$			–0.000		
			(0.000)		
Log(1+$ federal contracts$_{i,t}$)				–0.013***	–0.006
				(0.001)	(0.005)
Log(1+$ federal contracts$_{i,t}$) $\times$ mean of PRisk$_{i,t}$					–0.001
					(0.001)
N	115,059	114,999	110,164	115,059	115,059
Time FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Sector*time FE	yes	yes	yes	yes	yes

- Firm-level variation not explained by heterogenous loadings on aggregate political risk or volatile government contracts.

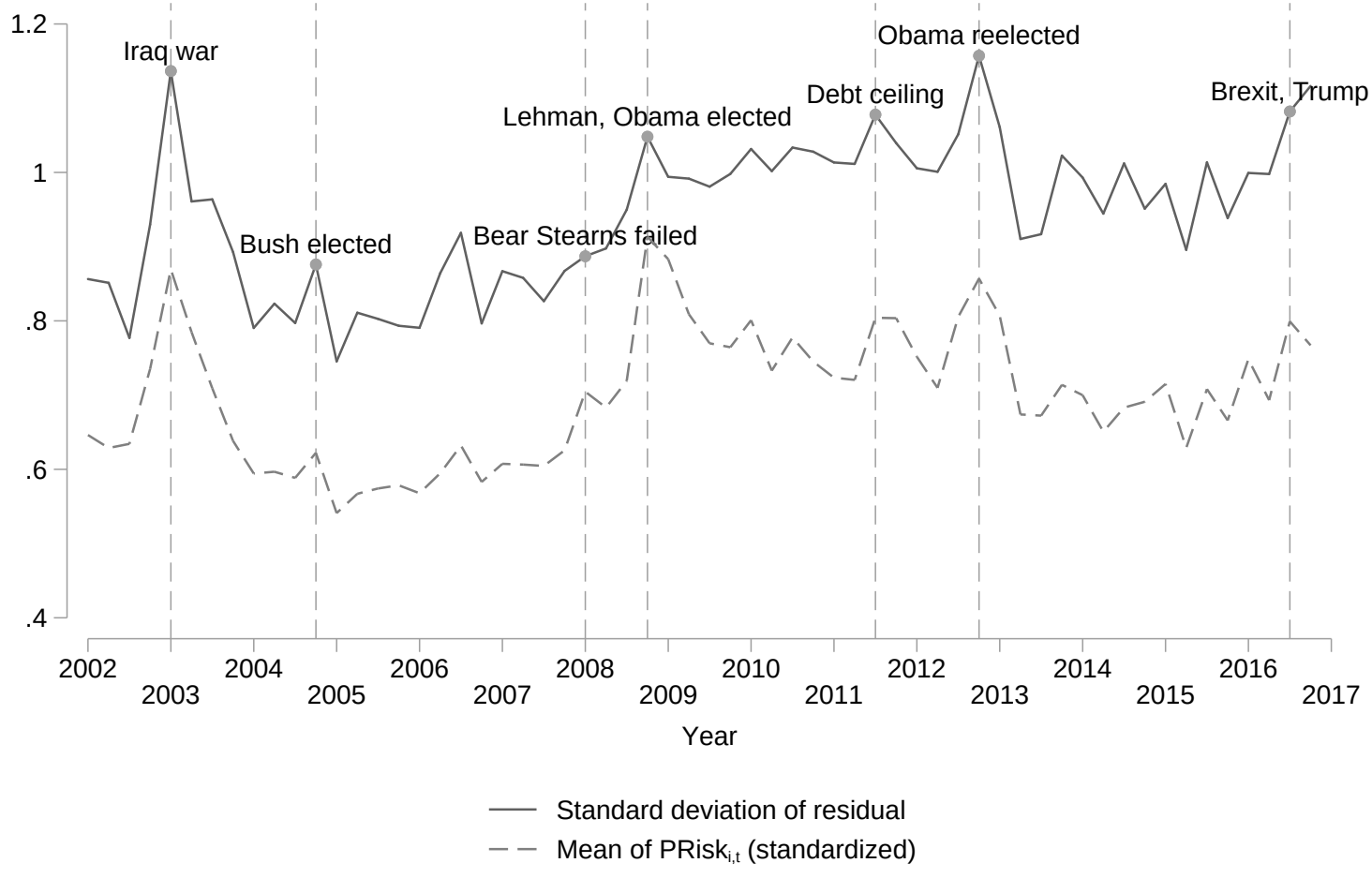
▸ Other outcomes A ▸ Other outcomes B

Distribution of Firm-level $PRisk_{it}$



Dispersion of Firm-level Political Risk

Dispersion increases when aggregate risk is high.



Coef.=.989 (s.e. = .067).

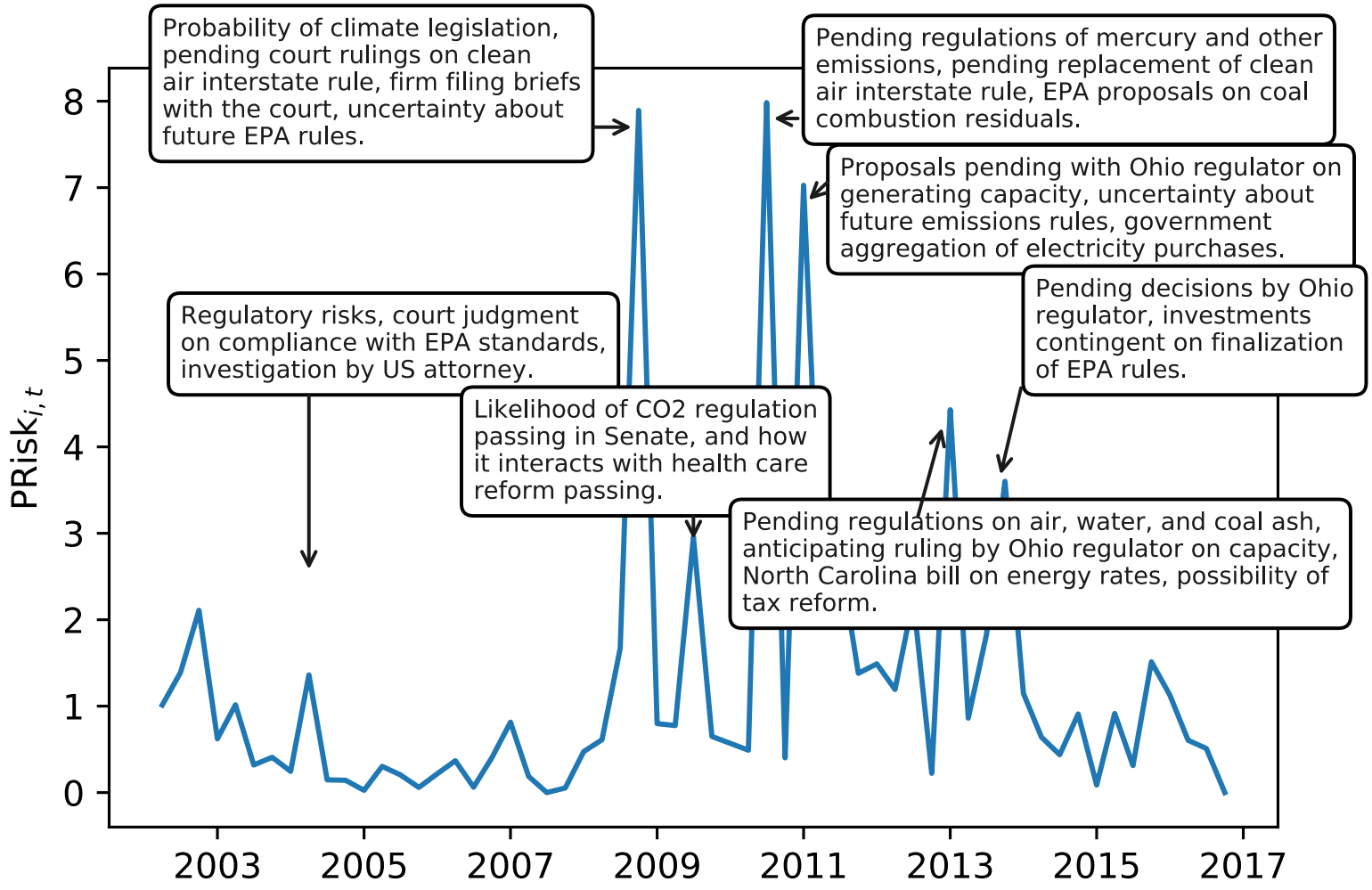
Firm-level Political Risk

- Accounts for most of the variation in $PRisk_{it}$.
- Has economic content: significantly associated with all the same outcomes as aggregate political risk.
- Dispersion in idiosyncratic political risk spikes when aggregate political risk is high (even when controlling for business cycle).

$\Rightarrow$ Potentially important, novel transmission mechanism to the macroeconomy: Taken at face value, results suggest that dispersion in firm-level political risk misallocates resources $\Rightarrow$ lowers TFP!

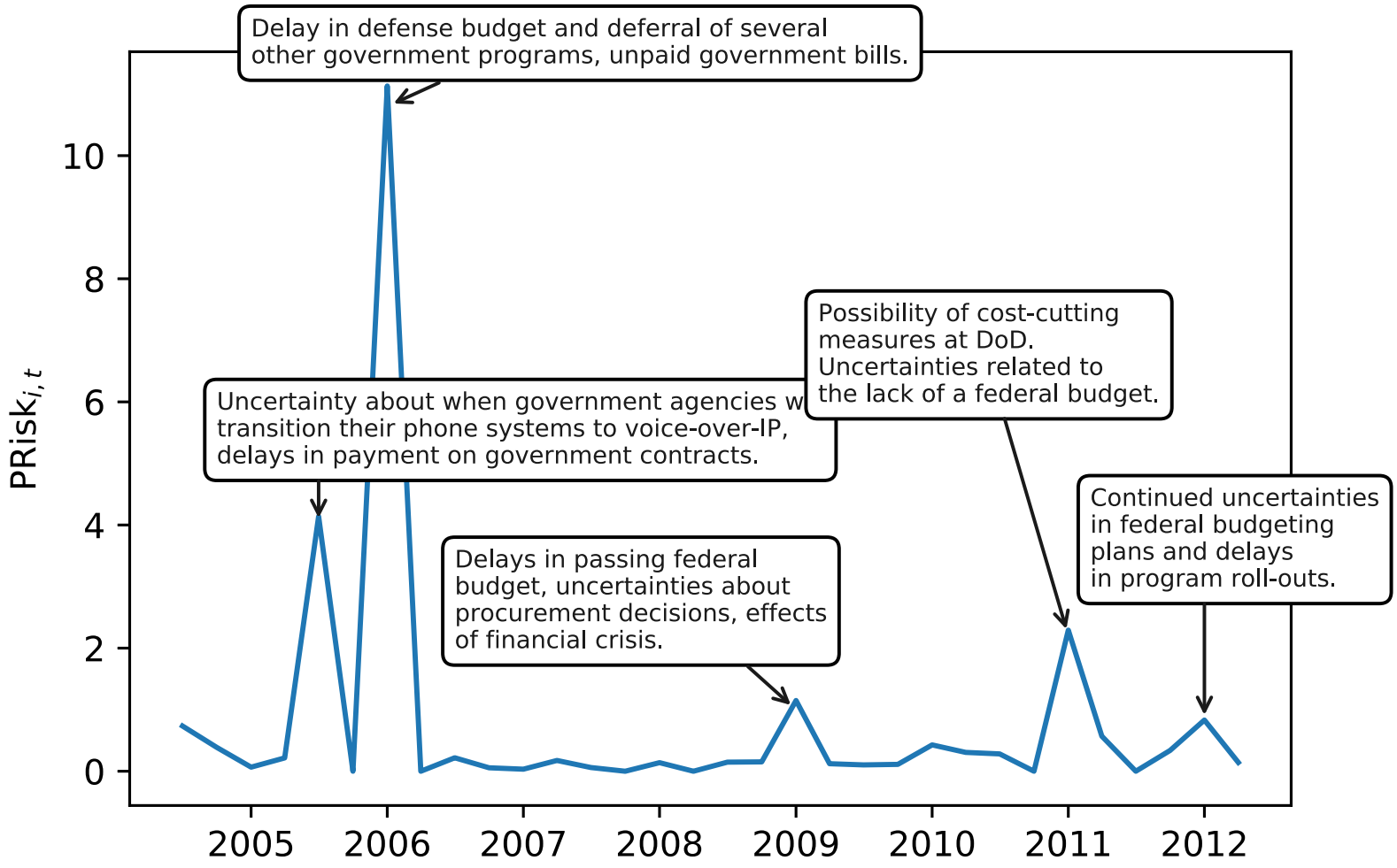
Example #1: Duke Energy Corporation

- A coal company's $PRisk_{it}$



Example #2: Network Equipment Technologies

- A technology company's $PRisk_{it}$



Outline

Validation

Firm-Level Political Risk

Topic-Based Measures
- Validation
- Lobbying by Topic
- Application to Federal Budget Crises

Validation: Top Political Bigrams for each Topic

Topic	Top five bigrams
Economic Policy & Regulation	minimum wage, balanced budget, legislation provides, bankruptcy bill, medicaid matching
Environment	air act, from renewable, climate change, clean air, states rights
Trade	free trade, trade agreement, trade agreements, trade barriers, freetrade agreement
Institutions & Political Process	campaign finance, constitution to, finance reform, federal elections, appropriations bills
Health	prescription drug, cut medicare, government takeover, drug plan, for lowincome
Security & Defense	on terror, from iraq, bin laden, nuclear weapons, our troops
Tax Policy	estate tax, tax relief, bush tax, the estate, middleclass tax
Technology & Infrastructure	street station, fairness doctrine, cyber warfare, on highways, faithbased organizations

Validation: Transcript excerpts with highest $PRisk_{i,t}$

Topic	Top two context strings
Institutions & Political Process	1) "**president and ceo absolutely yes** andrew marcus deutsche banc **securities analyst** i —DOUBT— for obviously **there has been *some campaign finance reform*** how do you think it is going **to affect *the political trends in*** *david j* barrett hearstargyle television inc president" (Hearst-Argyle Television, Inc. on 30-Oct-2002) 2) "introduced **during our** visits on **the hill** we continue to ***hear a*** *resounding* ***support for private*** **capital in overall *housing finance reform efforts*** obviously **the *fha has* already *taken steps* to decrease its** —**RISK**— **and the ultimate** —**RISK**— ***to taxpayers by*** **implementing**" (Radian Group Inc on 05-May-2011)
Health	1) "**the internet site of *the commission*** at httpwwwsecgov these —**RISKS**— **and** —UNCERTAINTIES— **include among others the impact of *the medicare prescription drug improvement act* of and** other **healthcare *reforms and*** initiatives possible **reductions of changes *in*** *reimbursements* from form ph ***of government***" (Medcath Corporation on 12-Aug-2004) 2) "rate reduction built into ***the states fiscal budget for*** later **this year and** the **state has also** reinstated its ***child health*** **insurance plan** *program there* **is still the rate** reduction —PENDING— for this **october that** we have *to* ***contend with*** **our team**" (American Dental Partners on 27-Jul-2010)
Security & Defense	1) "**the defense side of** aerospace defense **markets continue** to have —UNCERTAINTY— for due to limited ***budgets and*** the **winding down *of military* activities in *iraq and afghanistan and*** we continue **to watch** for **the effects *of government budget cuts*** specifically we are" (CIRCOR International Inc on 05-May-2011) 2) "***that* are really** *relevant* ***in todays defense and intelligence*** market there are vagaries and —UNCERTAINTIES— to the ***government budget*** but **the *intelligence and surveillance and*** reconnaissance the isr **world will *remain a* high area *of government* investment** as we **move forward and**" (PAR Technology Corp on 30-Mar-2016)

▸ Remaining topics ▸ Correlation with BBD-topic measure

Lobbying by political topic

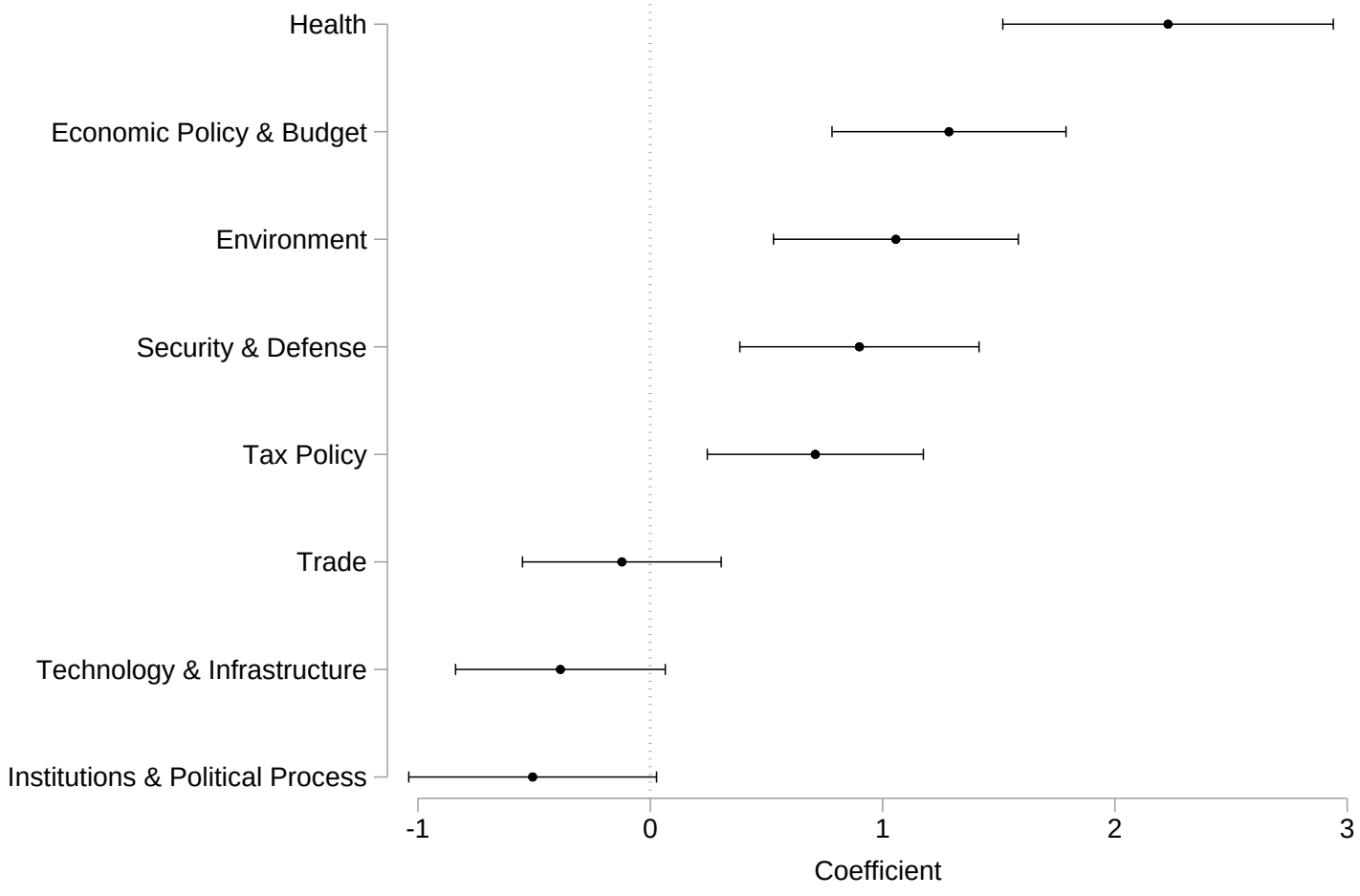
- Lobbying expenses by topic (Center for Responsive Politics), manually match each of 80 topics from disclosure forms to our 8 topic-based measures of $PRisk_{it}^{T}$.

$$1[Lobbying_{i,t+1}^{T} > 0] = \delta_i + \delta_t + \delta_T + \beta PRisk_{it}^{T} + \gamma' X_{it} + \epsilon_{it}$$

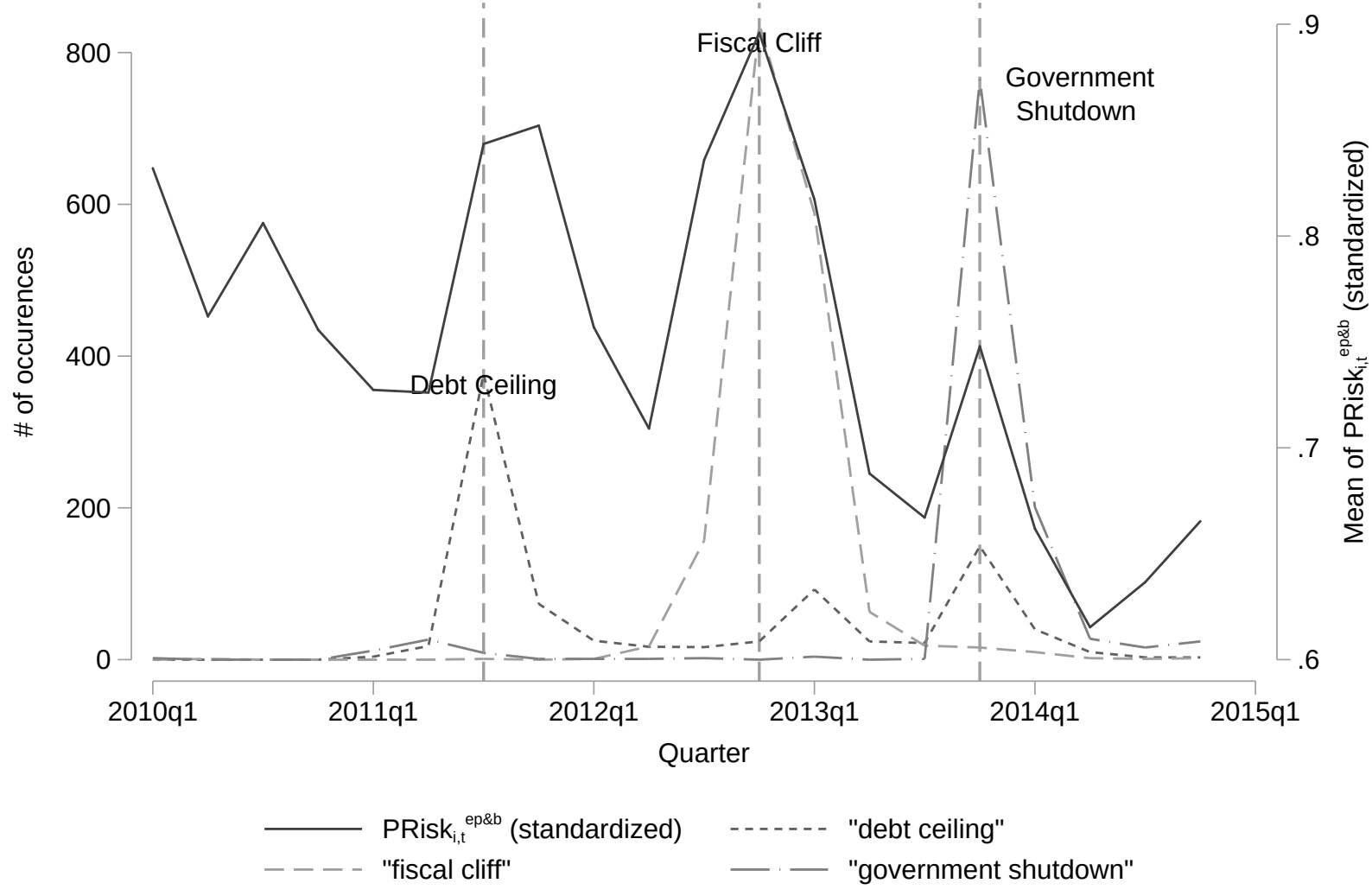
	$\mathbb{1}[\text{lobbying}_{i,t+1}^{T} > 0] * 100)$				
	(1)	(2)	(3)	(4)	(5)
$\text{PRisk}_{i,t}^{T}$ (standardized)	1.350***	1.050***	0.794***	0.819***	0.114***
	(0.094)	(0.093)	(0.047)	(0.048)	(0.029)
R^2	0.105	0.127	0.311	0.316	0.647
N	1,177,824	1,177,824	1,177,824	1,177,824	1,177,824
Time FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	implied	implied	implied
Topic FE	no	yes	yes	yes	yes
Firm FE	no	no	yes	yes	yes
Sector×time FE	no	no	no	yes	yes
Firm×topic FE	no	no	no	no	yes

Heterogeneity across topics

$$1[Lobbying^{T}_{i,t+1} > 0] = \delta_i + \delta_t + \delta_T + \zeta^{T}\delta_T \times PRisk^{T}_{it} + \gamma' X_{it} + \epsilon_{it}$$



Application: Obama-era Budget Crises



Application: Obama-era Budget Crises

PANEL A	Δ PRisk$^{ep\&r}_{i,t}$			PRisk$^{ep\&r}_{i,t}$
	(1)	(2)	(3)	(4)
# of 'debt ceiling'	0.257***	0.506***	0.468***	
	(0.075)	(0.190)	(0.155)	
# of 'fiscal cliff'		0.018		
		(0.048)		
# of 'government shutdown'			0.129***	
			(0.049)	
# of 'debt ceiling', 'fiscal cliff', and 'government shutdown'				0.253***
				(0.023)
Time FE	no	no	no	yes
Firm FE	no	no	no	yes
Time$\times$sector FE	no	no	no	yes
Sample period	2011-q3	2013-q1	2013-q4	All
R^2	0.009	0.007	0.027	0.316
N	3,342	2,891	2,967	147,228

Regression of # any of the above on share of government in firm revenues yields .154***(.059).

Application: Budget Crises

PANEL B	$\mathbb{1}[\text{lobbying}^{T}_{i,t+1} > 0] * 100)$			Log(1+\$ lobbying$^{ep\&r}_{i,t}$)
	(1)	(2)	(3)	(4)
# of 'debt ceiling', 'fiscal cliff', and 'government shutdown'	0.698**			
	(0.299)			
PRisk$^{ep\&r}_{i,t}$		0.183**	2.430***	0.303***
		(0.084)	(0.937)	(0.106)
Time FE	yes	yes	yes	yes
Firm FE	yes	yes	yes	yes
Time$\times$sector FE	yes	yes	yes	yes
Sample period	All	All	All	All
Model	OLS	OLS	IV	IV
F-statistic on instruments			76.786	76.786
R^2	0.679	0.679	0.676	0.719
N	147,228	147,228	147,228	147,228

Conclusion

- Introduced simple, firm-level measure of political risk.
- Firm-level variation in political risk associated with lower hiring & investment, but higher expenditures on lobbying and donations to politicians.
- Large amount of variation political risk at the firm-level. Assignment of political risk across firms within a given sector changes dramatically over time.
- Dispersion of firm-level political risk increases when aggregate political risk is high, possibly lowering TFP.
- Firms that devote more time discussing risks associated with a particular political topic increase lobbying on that topic and not other topics (actively manage political risk).

Top 60 political bigrams used in $PRisk_{i,t}$

Bigram	$(f_{b,\mathbb{P}}/B_{\mathbb{P}}) * 10^5$	Overall frequency	Bigram	$(f_{b,\mathbb{P}}/B_{\mathbb{P}}) * 10^5$	Overall frequency
the constitution	201.15	9	and social	34.60	140
the states	134.29	203	first amendment	34.01	1
public opinion	119.05	4	congress the	34.01	9
interest groups	118.46	8	the republican	33.43	10
of government	115.53	31	tea party	33.43	1
the gop	102.24	1	the legislative	33.43	92
in congress	78.00	107	of civil	32.84	14
national government	68.03	7	court has	32.84	30
social policy	62.16	1	groups and	32.25	109
the civil	60.99	64	struck down	31.67	3
elected officials	60.40	3	shall have	31.67	7
politics is	53.95	7	civil war	31.67	8
political parties	51.61	3	the congress	31.67	50
office of	51.02	58	the constitutional	29.91	9
the political	51.02	1091	ruled that	29.32	15
interest group	48.09	1	the presidential	29.32	121
the bureaucracy	48.09	1	of representatives	28.74	10
and senate	46.33	19	policy goals	28.15	2
government and	44.57	325	african americans	28.15	2
for governor	41.49	2	economic policy	28.15	15
executive branch	40.46	3	of social	28.15	31
support for	39.88	147	a political	28.15	121
the epa	39.16	139	of speech	27.56	1
in government	38.70	209	civil service	27.56	2
congress to	36.95	19	government policy	27.56	52
political process	36.36	18	federal courts	27.56	1
care reform	35.77	106	argued that	26.98	8
government in	35.19	77	the democratic	26.98	7
due process	35.19	6	islamic state	26.93	1
president obama	34.60	7	president has	26.86	7

68,819 unique bigrams in total.

back

Transcript excerpts with highest $\text{PRisk}_{i,t}$

Firm Name	Call Date	$\text{PRisk}_{i,t}$ (std)	Text surrounding bigram with highest weight ($f_{b,\mathbb{P}}/B_{\mathbb{P}}$)
NEVADA GOLD CASINOS INC	10-Sep-2008	71.20	gaming industry is currently **supporting a ballot** initiative to **amend the constitution to authorize an** increase in the —BET— limits allow additional
Axis Capital Holdings Limited	9-Feb-2010	66.7	accident year ratios the combined ratios we have talked about **the political** —RISK— business particularly really shouldnt be looked at on a
Female Health	10-Feb-2009	60.55	market acceptance the economic and business environment and the impact **of government pressures** currency —RISKS— capacity efficiency and supply **constraints and** other
Employers Holdings Inc	01-May-2014	60.06	of —HAZARD— **groups but** as you start moving it around **the states** you can have an impact robert paun sidoti company analyst
National Mentor Holdings, Inc.	12-Feb-2010	58.33	governments **both president obamas budget proposal and separate legislation** —PENDING— **in congress would provide** funding to continue **the medicaid** stimulus for **another**
Applied Energetics, Inc.	11-May-2009	56.37	of products and the —UNCERTAINTY— of the timing **and magnitude of government funding and** customer orders **dependence on** sales **to government** customers
Calian Group Ltd	09-Feb-2011	56.27	sure benoit poirier desjardins securities analyst okay and in terms **of government** cost cutting initiatives is there any —RISK— of missing consensus
Insurance Australia Group Ltd	23-Feb-2012	53.05	leadership i just wondered if you **had concerns** about how **the political** —INSTABILITY— might affect **policies that** have **ramifications for** the industry

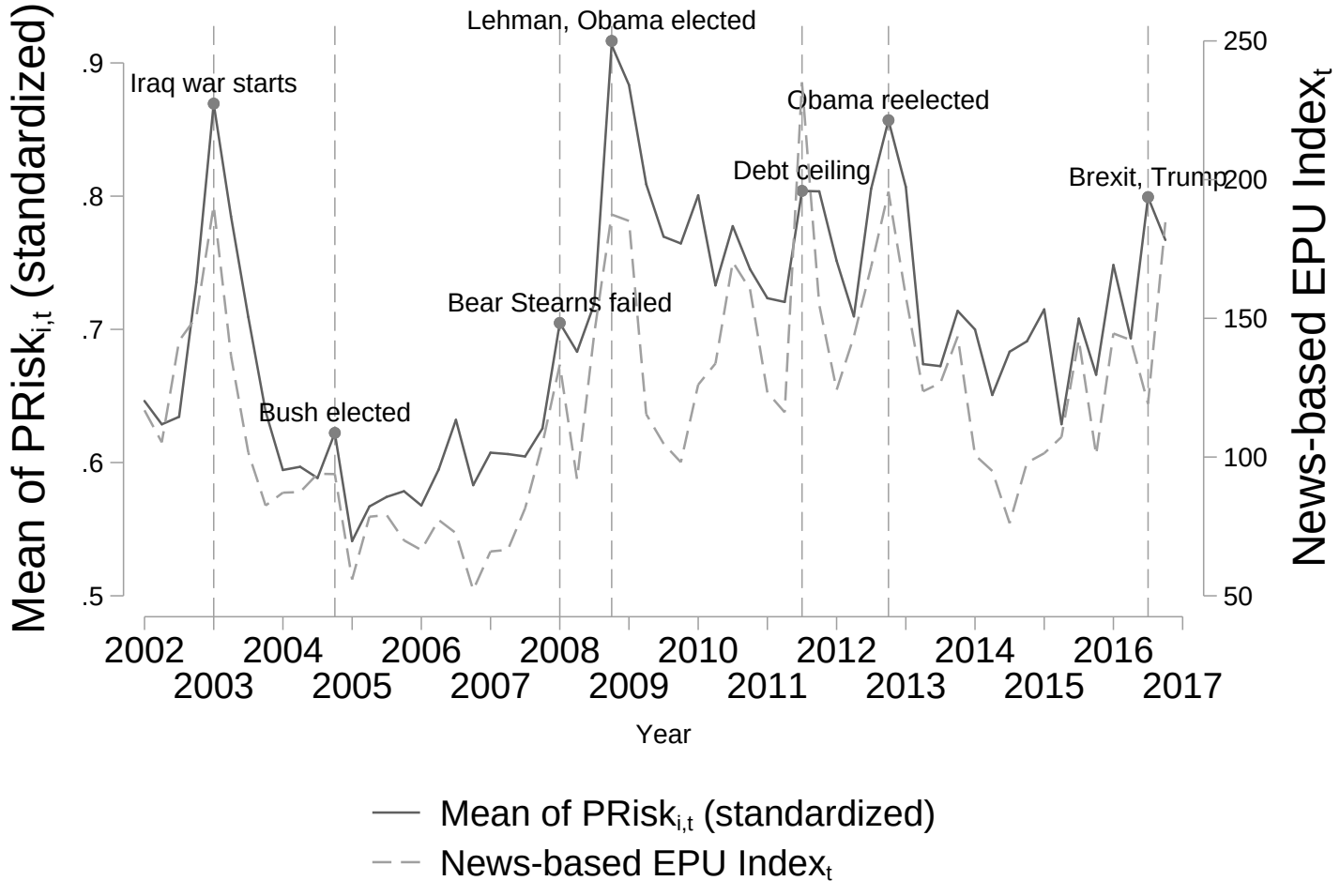
back

Transcript excerpts with highest $\text{PRisk}_{i,t}$

Firm Name	Call Date	$\text{PRisk}_{i,t}$ (std)	Text surrounding bigram with highest weight ($f_{b,\mathbb{P}}/B_{\mathbb{P}}$)
FPIC Insurance Group, Inc.	30-Oct-2008	53.04	a —CHANCE— for national **tort reform and** i dont see **the constitution of** congress **changing in** such a way after **this election**
BANKFINANCIAL CORP	4-Nov-2008	52.54	was **an accurate** metaphor and really given all the —UNCERTAINTIES— **of government involvement** in operations and business activities and given the capital
Nanogen, Inc.	8-Aug-2007	51.00	**a dip** in revenues during q related to the —UNCERTAINTY— **of government approval for** the phase **funding of** the cdc contract additionally
World Acceptance Corporation	25-Jul-2006	50.59	management analyst i wanted to followup on the regulatory **front the states** that you had **mentioned the** —POSSIBILITY— of some positive **legislation**
United Refining Company	23-Jul-2010	48.42	shape on asphalt **the funding is** very —IFFY— in all **the states so** and the private work is very slow operator operator
Magellan Health Services	29-Jul-2010	48.34	future so this is a time of quite —UNCERTAINTY— for **the states** they are not **sure what** the fmap will be if
Piraeus Bank SA	19-Mar-2015	47.23	that this time around the process or the impact of **the political** —**UNCERTAINTY**— has been a bit more subdued than last time
Piedmont Natural Gas	9-Jun-2009	47.15	**your point** as you will recall in all three of **the states** that we have serve jim we are —EXPOSED— only to

back

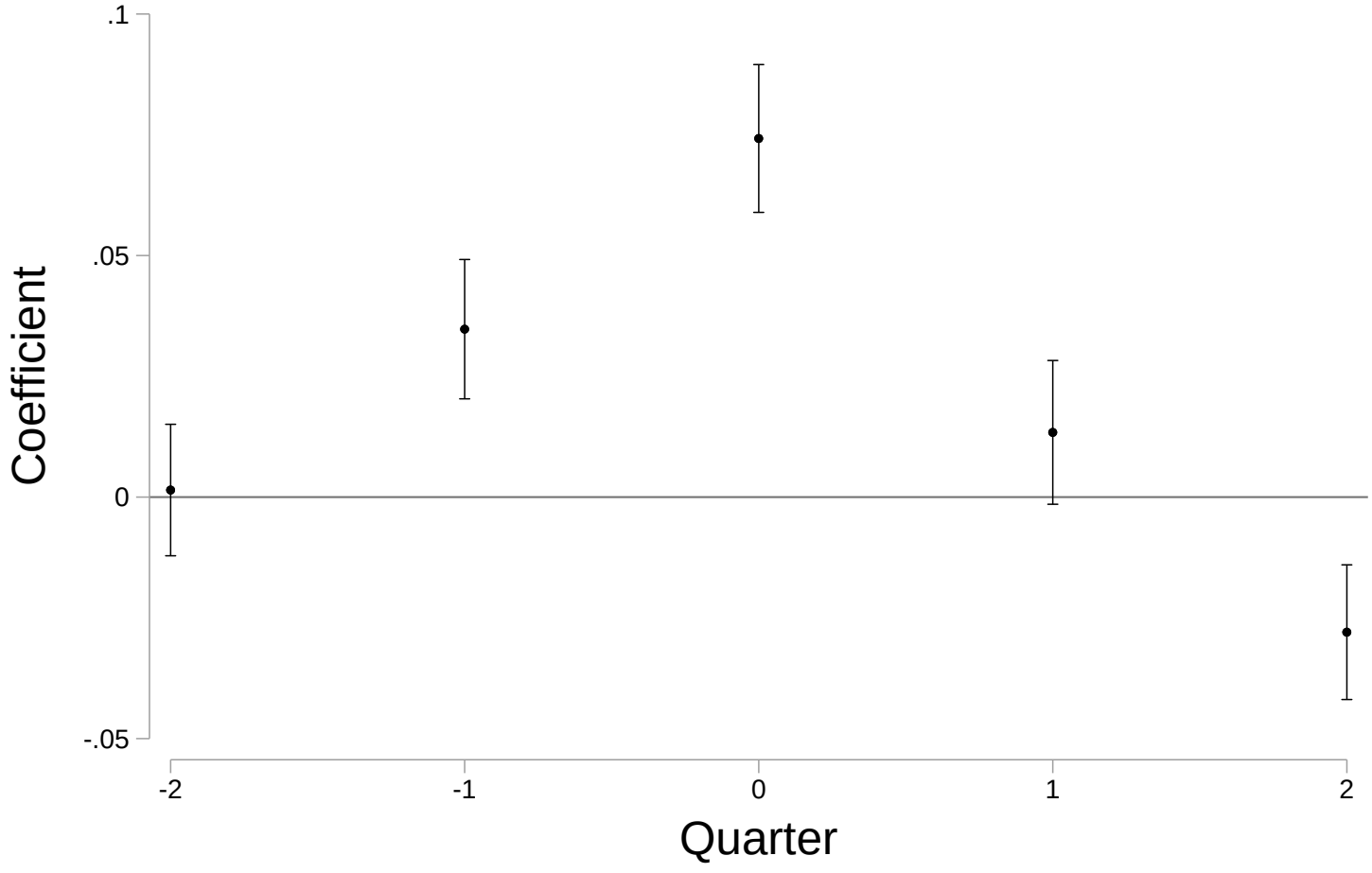
Mean of $PRisk_{i,t}$ across firms



Correlation with BBD newspaper-based measure=0.821.

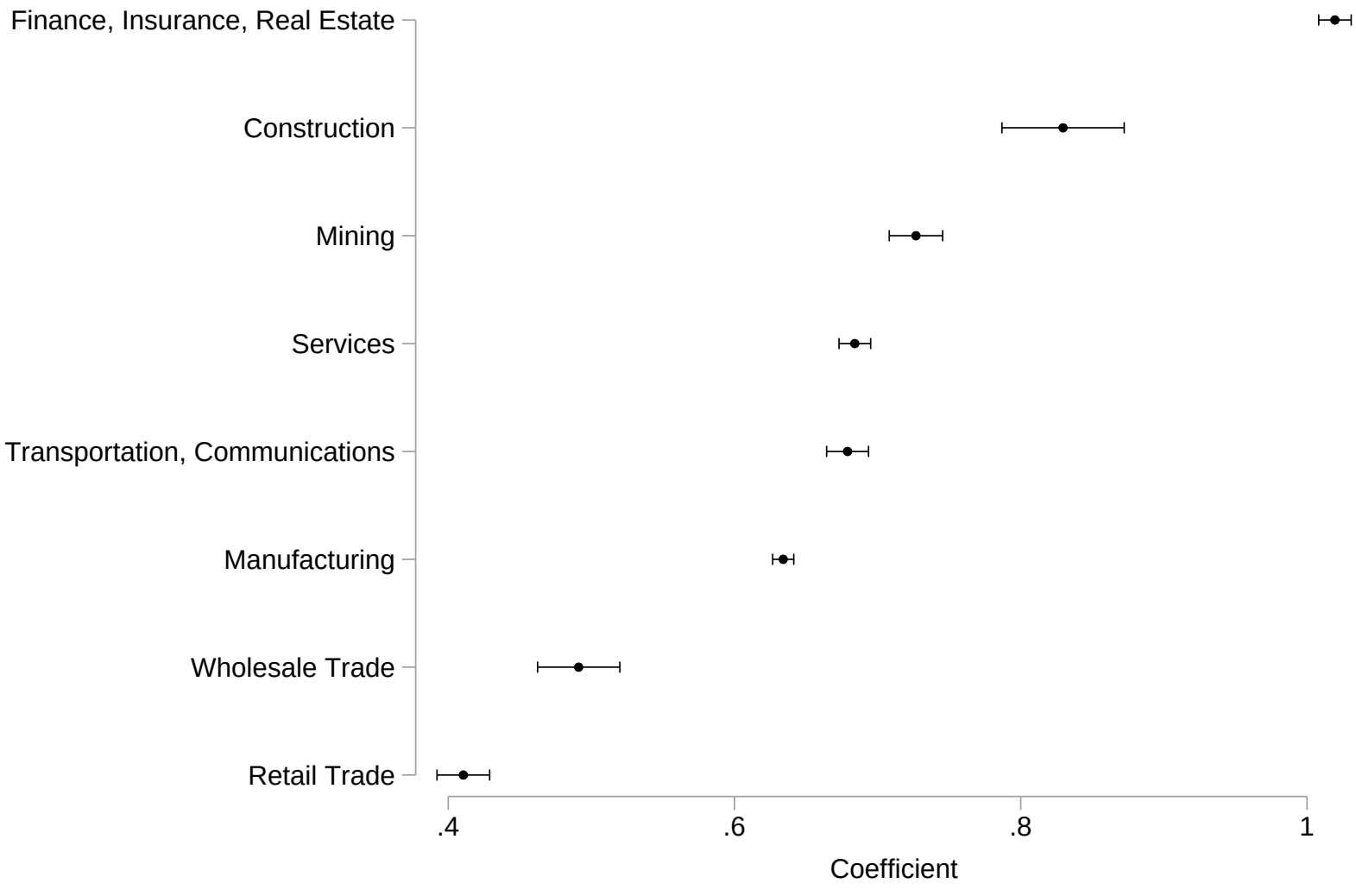
back

$PRisk_{i,t}$ higher around federal elections



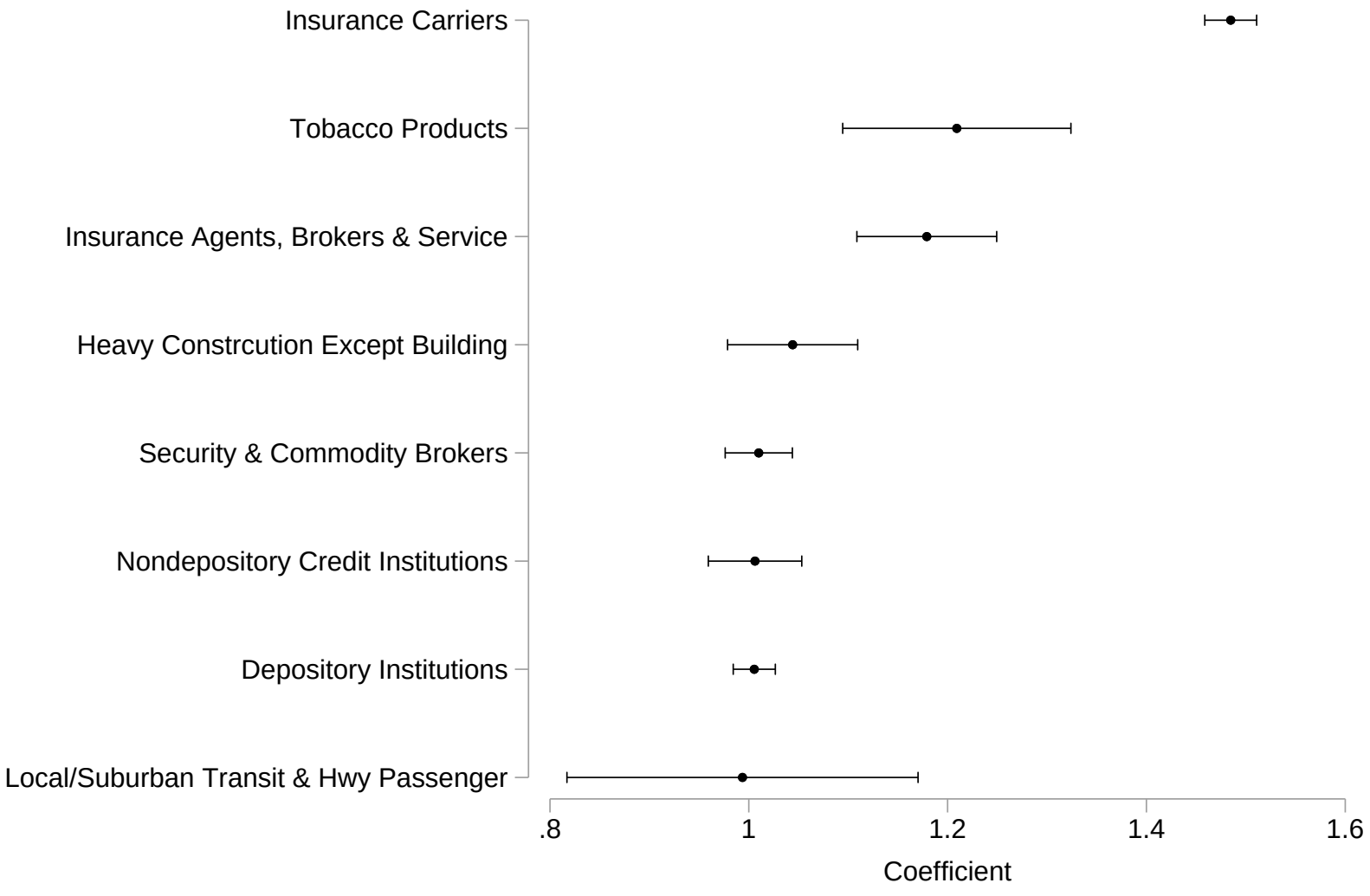
back

Mean of $PRisk_{i,t}$ by SIC division



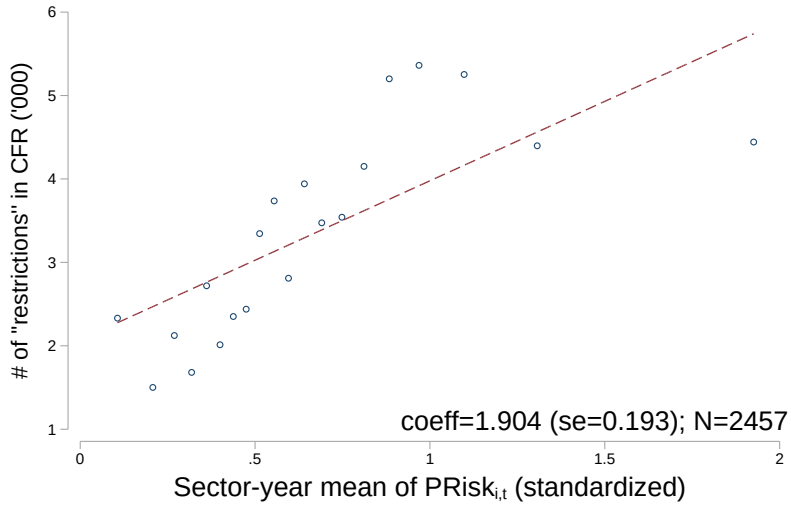
Same chart for top 5 two-digit SIC industries back

Mean of $PRisk_{i,t}$ by SIC-2 division

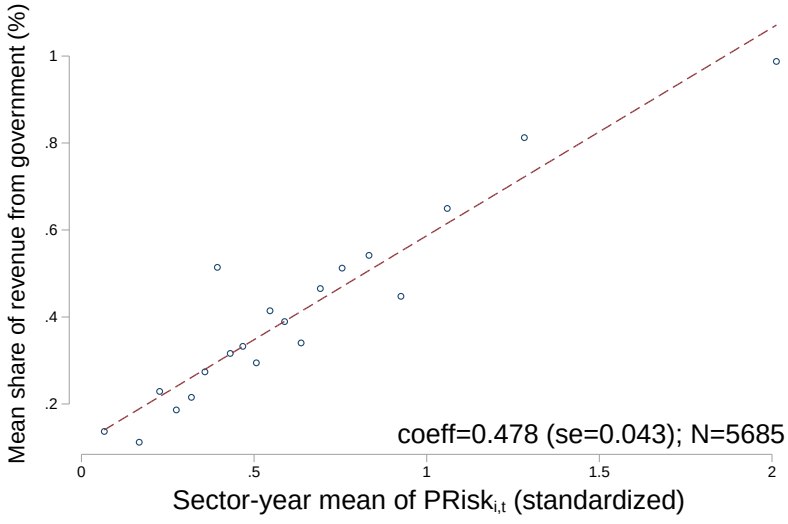


Go back

$PRisk_{i,t}$, regulation, and government expenditure



(a) # of restrictive words in the CFR

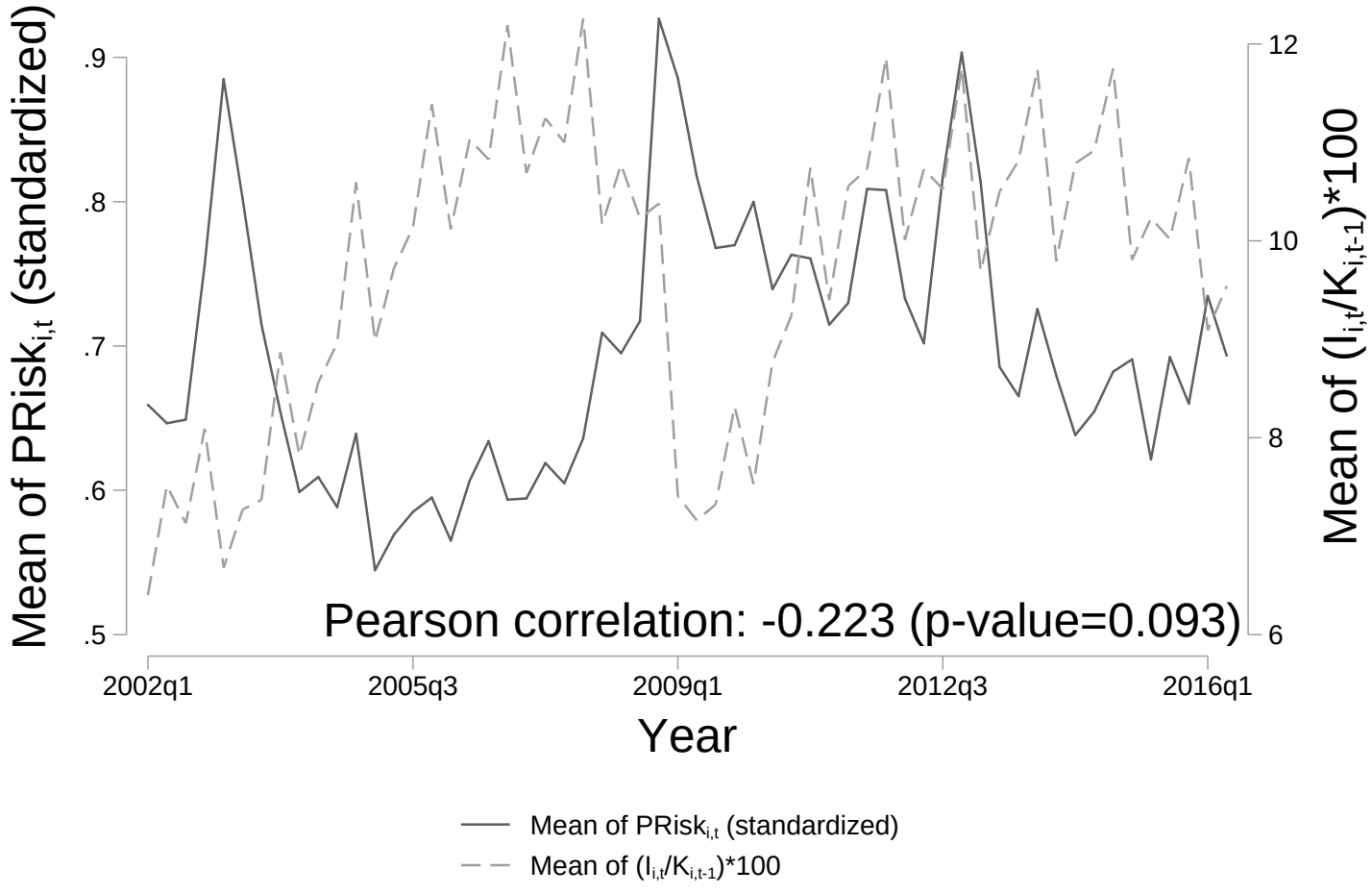


(b) Share of government revenue

Relationship between the industry-year average of $PRisk_{i,t}$ and two different measures of industry exposure to politics.

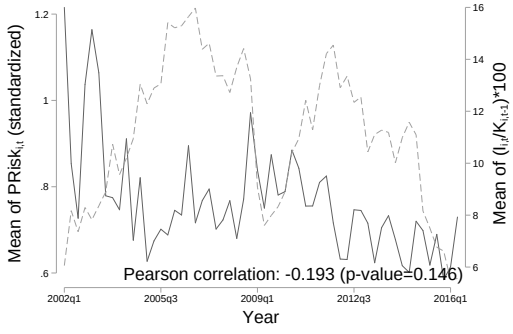
Go back to introduction

Aggregate variation in $PRisk_{i,t}$ vs. Investment

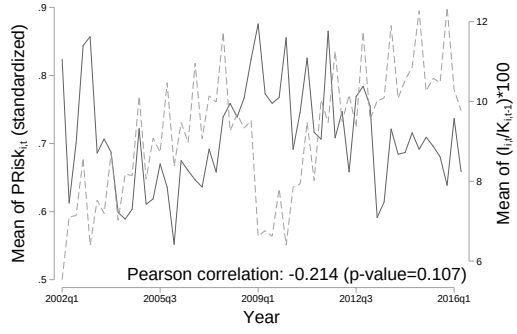


Go back to table on investment and employment

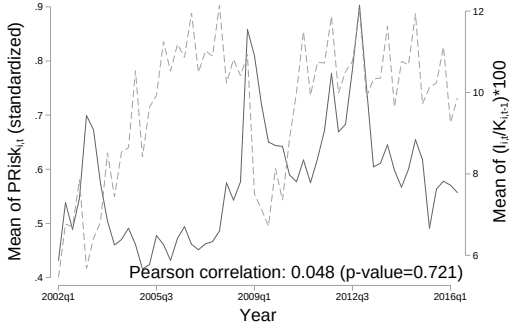
Sector-level variation in $PRisk_{i,t}$ vs. Investment



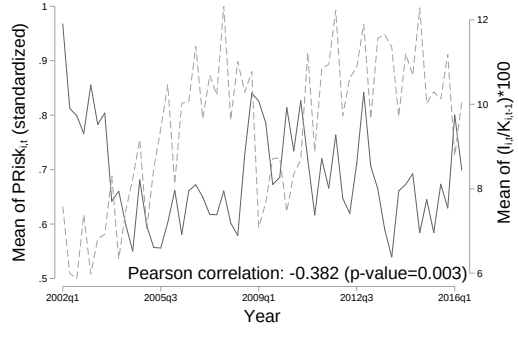
Mining



Construction



Manufacturing



Transportation; communication;
electric, gas, and sanitary services

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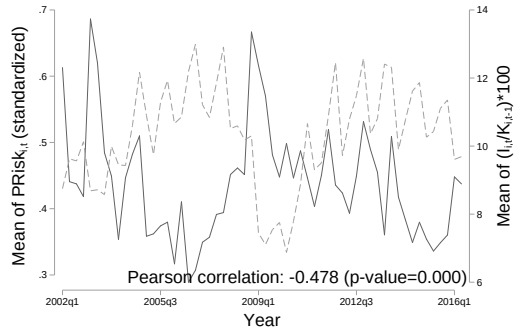
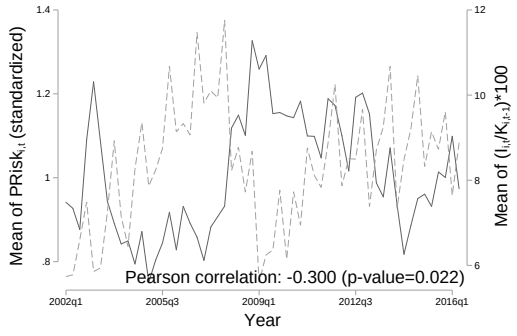
Go ▸ back to table on investment and employment

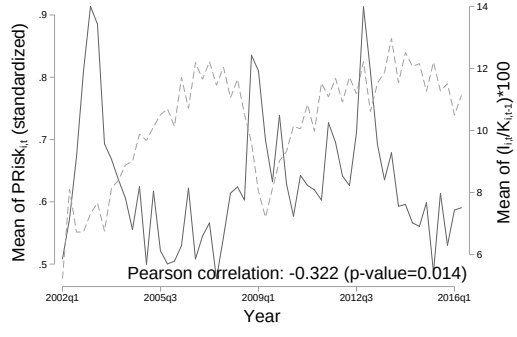
Sector-level variation in $PRisk_{i,t}$ vs. Investment



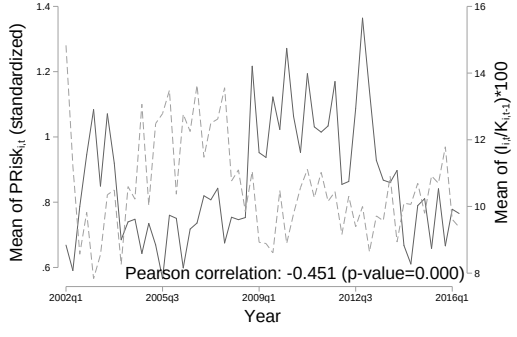
Wholesale trade



Retail trade



Finance, insurance, and real estate



Services

FIXMETH: No slide currently links to this figure Go back to table on investment and employment

Alternative constructions of $PRisk_{it}$

	Implied volatility$_{i,t}$ (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PRisk$_{i,t}$ (standardized)	0.025***							
	(0.005)							
Textbook-based PRisk$_{i,t}$ (standardized)		0.022***						
		(0.005)						
Newspaper-based PRisk$_{i,t}$ (standardized)			0.028***					
			(0.005)					
PRisk$_{i,t}$ (standardized, not capped)				0.018***				
				(0.005)				
Unweighted PRisk$_{i,t}$ (standardized)					0.042***			
					(0.006)			
PRisk$_{i,t}$ (standardized) w/o stopwords						0.016***		
						(0.005)		
PRisk10K$_{i,t}$ (standardized)							0.005	
							(0.009)	
Firm level EPU$_{i,t}$ ($\mathbb{1}$)								0.019
								(0.013)
N	115,059	115,059	115,059	115,059	115,059	115,059	103,571	115,059
Time FE	yes	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes	yes

Go back

$PRisk_{it}$ vs. Firm-level EPU_{it}

	Realized volatility$_{i,t}$ (standardized)		$I_{i,t}/K_{i,t-1}$ * 100	
	(1)	(2)	(3)	(4)
Firm level EPU$_{i,t}$ ($\mathbb{1}$)	0.026**	0.016	0.019	0.006
	(0.010)	(0.010)	(0.013)	(0.013)
PRisk$_{i,t}$ (standardized)		0.019***		0.025***
		(0.004)		(0.005)
N	162,153	162,153	115,059	115,059
Time FE	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes

Go back

Firm-level variation vs. measurement error

	Log(1+$ donations$_{i,t+1}$)		# of recipients$_{i,t+1}$		Log(1+$ lobby$_{i,t+1}$)	
	(1)	(2)	(3)	(4)	(5)	(6)
PRisk$_{i,t}$ (standardized)	0.087***	0.086***	0.462***	0.468***	0.186***	0.184***
	(0.018)	(0.018)	(0.118)	(0.120)	(0.027)	(0.028)
N	176,173	176,173	176,173	176,173	147,228	147,228
Time FE	yes	yes	yes	yes	yes	yes
Sector*time FE	yes	yes	yes	yes	yes	yes
Firm FE	no	yes	no	yes	no	yes

Go back to the AV plot

Nature of Firm-level $PRisk_{it}$ (other outcomes)

	(1)	(2)	(3)	(4)	(5)
PANEL A	Implied volatility$_{i,t}$ (standardized)				
PRisk$_{i,t}$ (standardized)	0.027***	0.027***	0.027***	0.029***	0.029***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
PANEL B	$\frac{I_{i,t}}{K_{i,t-1}} * 100$				
PRisk$_{i,t}$ (standardized)	–0.159***	–0.181***	–0.167***	–0.153***	–0.155***
	(0.042)	(0.043)	(0.044)	(0.042)	(0.042)
PANEL C	$\frac{\Delta \text{capexg}_{i,t}}{\text{capexg}_{i,t-1}} * 100$				
PRisk$_{i,t}$ (standardized)	–0.391***	–0.405***	–0.435***	–0.389***	–0.391***
	(0.124)	(0.125)	(0.126)	(0.124)	(0.124)
PANEL D	$\frac{\Delta \text{emp}_{i,t}}{\text{emp}_{i,t-1}} * 100$				
PRisk$_{i,t}$ (standardized)	–0.725***	–0.619***	–0.725***	–0.660***	–0.662***
	(0.156)	(0.163)	(0.156)	(0.156)	(0.157)
Time FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Sector×time FE	yes	yes	yes	yes	yes

Go back to the ▸ full realizied volatility table

Nature of Firm-level $PRisk_{it}$ (other outcomes)

	(1)	(2)	(3)	(4)	(5)
PANEL E	Log(1+$ lobby$_{i,t+1}$)				
PRisk$_{i,t}$ (standardized)	0.184***	0.196***	0.207***	0.159***	0.159***
	(0.028)	(0.029)	(0.029)	(0.026)	(0.026)
PANEL F	Log(1+$ donations$_{i,t+1}$)				
PRisk$_{i,t}$ (standardized)	0.086***	0.093***	0.096***	0.070***	0.070***
	(0.018)	(0.019)	(0.019)	(0.018)	(0.018)
PANEL G	# of recipients$_{i,t+1}$				
PRisk$_{i,t}$ (standardized)	0.468***	0.495***	0.506***	0.413***	0.411***
	(0.120)	(0.127)	(0.131)	(0.114)	(0.114)
PANEL H	Hedge$_{i,t+1}$				
PRisk$_{i,t}$ (standardized)	0.007***	0.007***	0.007***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Time FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Sector×time FE	yes	yes	yes	yes	yes

Go back to the ▸ full realizied volatility table

Validation: Transcript excerpts with highest $PRisk^{T}_{i,t}$

Topic	Top two context strings
Economic Policy, Budget & Regulation	1) "of ***the states*** *arent really* that *significant for* us reza vahabzadeh **lehman brothers** analyst okay but i mean away from **minimum wage rates *in texas*** are you seeing **wage rates** going higher just because of scarcity **of labor** by any —CHANCE— tilman" (Landry's Restaurants on 10-May-2006) 2) "**before its all** about **for many** of our franchisees **the level *of*** —***uncertainty***— whether it **be on *the political*** *front* **minimum wage** different bills being introduced **that may** impact their profitability *that concern* ***still exists for*** **many *and while*** we remain pretty" (Dunkin' Brands Group Inc on 21-Jul-2016)
Environment	1) "***from*** **convincing to** *compelling the* **most recent scientific** report **issued by** the ***united nations*** foundation has **dispelled any lingering** —DOUBT— ***climate change is real*** it **is pervasive** and the time **to begin** acting **is now both *public opinion*** **and the *body politic***" (Exelon Corporation on 25-Apr-2007) 2) "to be the **case for** that will **be very similar to *or virtually identical to*** thereafter we **are** —UNSURE— ***the clean air act program provides*** **that *the states should*** **figure** out how to **do this and** how they **will go about** it" (GenOn Energy Inc on 09-Nov-2011)
Trade	1) "**the** —RISKS— **moving forward are what happens with** the state ***of government intervention*** around the ***world as*** it ***pertains to free trade*** as it ***pertains to*** *taxing* ***and*** **changing of *tax structure* of *multinational companies* and** we *are obviously* trying **to influence**" (Procter Gamble Company on 27-Oct-2010) 2) "we continue to look at that **project and do what** we can while were **waiting *for approval* of** our nonfree ***trade agreement*** **permit that** is —PENDING— with the ***government and*** were hopeful well **get *that permit*** approved soon in **the meantime** we" (Exxon Mobil Corp on 31-Oct-2013)

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Validation: Transcript excerpts with highest $\text{PRisk}^{T}_{i,t}$

Topic	Top two context strings
Tax Policy	1) “quantitative easing **coming to *an end* a budget** crisis coming **theres been** a lot ***of government money* being thrown** around **tax relief** thrown around thats stimulating spending i **think there** is a lot ***of*** *—**uncertainty**— on* okay what is going **to happen**” (Novellus Systems Inc on 27-Apr-2011) 2) “there are **theres the** *—**suspicion**— that* **there will** be ***in congress an* attempt to remove the sunset *provision*** *from* ***the estate tax*** **as** you **know the way its** currently drafted it goes away in **for one year and comes** back into full” (Manulife Financial Corporation on 4-Feb-2003)
Technology & Infrastructure	1) “**act on** their own ultimately **letting the courts** decide it eschelon **wants *the states* to set *rates because*** we ***—fear— the fcc will leave*** special **access rates alone** *while states might* **insist on** costbased **rates which** is what we prefer **a decision**” (Eschelon Telecom, Inc. on 15-May-2006) 2) “i **think theres** a lot ***of*** *—**uncertainty**—* out there **regarding the regulatory** situation both ***in congress* and the *courts*** *at* ***the fcc*** and a **lot has happened this year and** i **would tell** you that **the vast majority** of it has been” (XO HLDGS INC on 29-Oct-2002)

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Validation: PSentiment$_{i,t}$

	Av return 7 days prior$_{i,t}$ (%)				Av return 1 month prior$_{i,t}$ (%)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PSentiment$_{i,t}$ (standardized)	0.033***	0.027***		–0.010	0.029***	0.024***		–0.003
	(0.005)	(0.005)		(0.006)	(0.002)	(0.002)		(0.003)
Sentiment$_{i,t}$ (standardized)			0.058***	0.065***			0.046***	0.048***
			(0.005)	(0.006)			(0.002)	(0.003)
NPSentiment$_{i,t}$ (standardized)		0.019***				0.017***		
		(0.005)				(0.002)		
R^2	0.046	0.046	0.047	0.047	0.182	0.182	0.183	0.183
N	148,202	148,202	148,202	148,202	148,304	148,304	148,304	148,304
Time FE	yes	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes	yes

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Transcripts with highest PSentiment$_{i,t}$

Firm Name	Call Date	PSentiment	Summary of PSentiment$_{i,t}$
Central Vermont Public Service	11-May-2006	20.934	– Firm lobbying and applying for various favorable regulatory changes on electricity rates, etc. – "(strength) to choose the (best) **options for** the companys and **the states future energy supply** all of these **goals are** interdependent and"
China Mobile Ltd	16-Aug-2012	16.225	– Strong support from government for company's TD-LTE developing activities. – "companys strategy tdlte has (attained) a **(strong) support from** the **government and** industry the company has (successfully) (accomplished) scale trial in six"
InterContinental Hotels Group PLC	08-May-2013	14.689	– Dip in China business due to tightened government spending in particular areas expected to be temporary. – "impacted by the change **in (leadership)** with a (greater) proportion **of government** business in these regions trading in resort locations **was (stronger)**"
China Telecom Corp Ltd	19-Aug-2015	14.034	– Company expects to benefit from national macro policy of Made-in-China 2025 and Internet+ – "continue **the establishment of nationwide** centralized mss to drive management **reform and (enhance)** (efficiency) third (improve) cost control to (enhance) cost structure"
Mercury General	3-Aug-2009	13.820	– Anticipated benefits from proposed legislation for harmonized national insurance regulation. – "with one set of rules **and standards** for all of **the states** that we do business would probably be a (positive) as"
Catalyst Health Solutions, Inc.	29-Jul-2004	13.319	– Confident about securing additional government contracts, federal drug benefit program likely to also have positive effects. – "**create new** growth drivers **to deploy** premium network **and (strengthen) support for** frontline and customer services to (strengthen) **(innovation) in** systems and"

Transcripts with lowest PSentiment$_{i,t}$

Firm Name	Date	PSentiment	Summary of PSentiment$_{i,t}$
ARCTIC GLACIER	12-May-2009	−15.914	– Antitrust action against US packaged ice industry. – "production of documents to the doj ((antitrust)) division and to **the states attorneys general** and is in the process of providing **the**"
Gabriel Resources Ltd.	7-May-2008	−15.078	– Romanian government delays environmental impact assessment, obstructs. – "year later we are being quite candid on these instances **of government** ((inaction)) as they are **symptoms of the ((concerns)) held more"**
Arbitron Inc.	21-Oct-2008	−14.692	– Firm under investigation for insider trading, false advertising, and deceptive bushiness practices. – "**middlesex county** ((alleging)) **((violations)) of** new jersey consumer ((fraud)) and **civil rights laws in** each case relating to the marketing and commercialization"
Omega Health-Care Investors, Inc.	5-Nov-2008	−14.001	– Negative impact of state fiscal situation on medicaid rates. –"**state medicaid** rates as you know **many states** are projecting **budget ((deficits)) the** most significant projected ((deficits)) where omega owns **facilities are**"
Polaris Materials Corp	22-Mar-2012	−13.931	– Government program for surface transportation not reauthorized. – "by the general (improvements) in california where ((serious)) ((concerns)) over **the states ability** to handle its debt appeared to be ((easing)) ((unfortunately))"
Natural Gas Services Group Inc	10-May-2012	−13.715	– Regulatory action regarding ground water contamination from fracking. – "after **the epa** ((dropped)) **their case the railroad** commission ((accused)) **the epa** of quote —FEAR— mongering gross ((negligence)) **and ((severe))** ((mishandling))"

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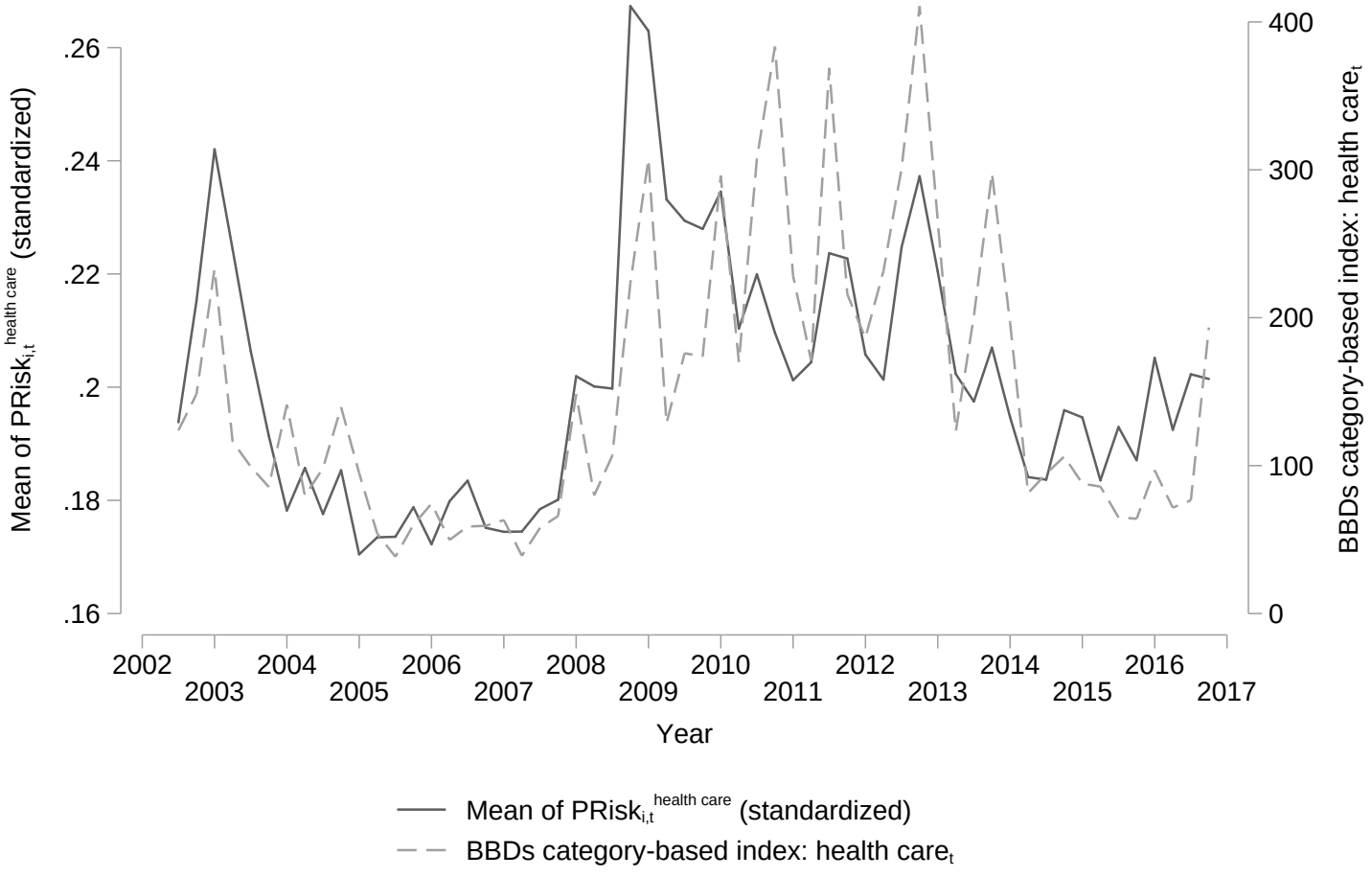
Validation: Mean of $PRisk_{i,t}^{HealthCare}$



Correlation with BBD health care measure 0.71.

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Lobbying by political topic: Timing

	$\mathbb{1}[\text{lobbying}^T_{i,t+1} > 0] * 100)$		$\text{PRisk}^T_{i,t}$ (standardized)
	(1)	(2)	(3)
$\text{PRisk}^T_{i,t}$ (standardized)	0.098***		0.081***
	(0.030)		(0.030)
$\text{PRisk}^T_{i,t+1}$ (standardized)	0.069**	0.072**	0.064**
	(0.032)	(0.032)	(0.030)
$\text{PRisk}^T_{i,t+2}$ (standardized)		0.051	0.048
		(0.031)	(0.031)
Time FE	yes	yes	yes
Firm FE	n/a	n/a	n/a
Topic FE	yes	yes	yes
Firm*topic FE	yes	yes	yes
N	860,504	791,568	791,568

Summary statistics: Firm-quarter data

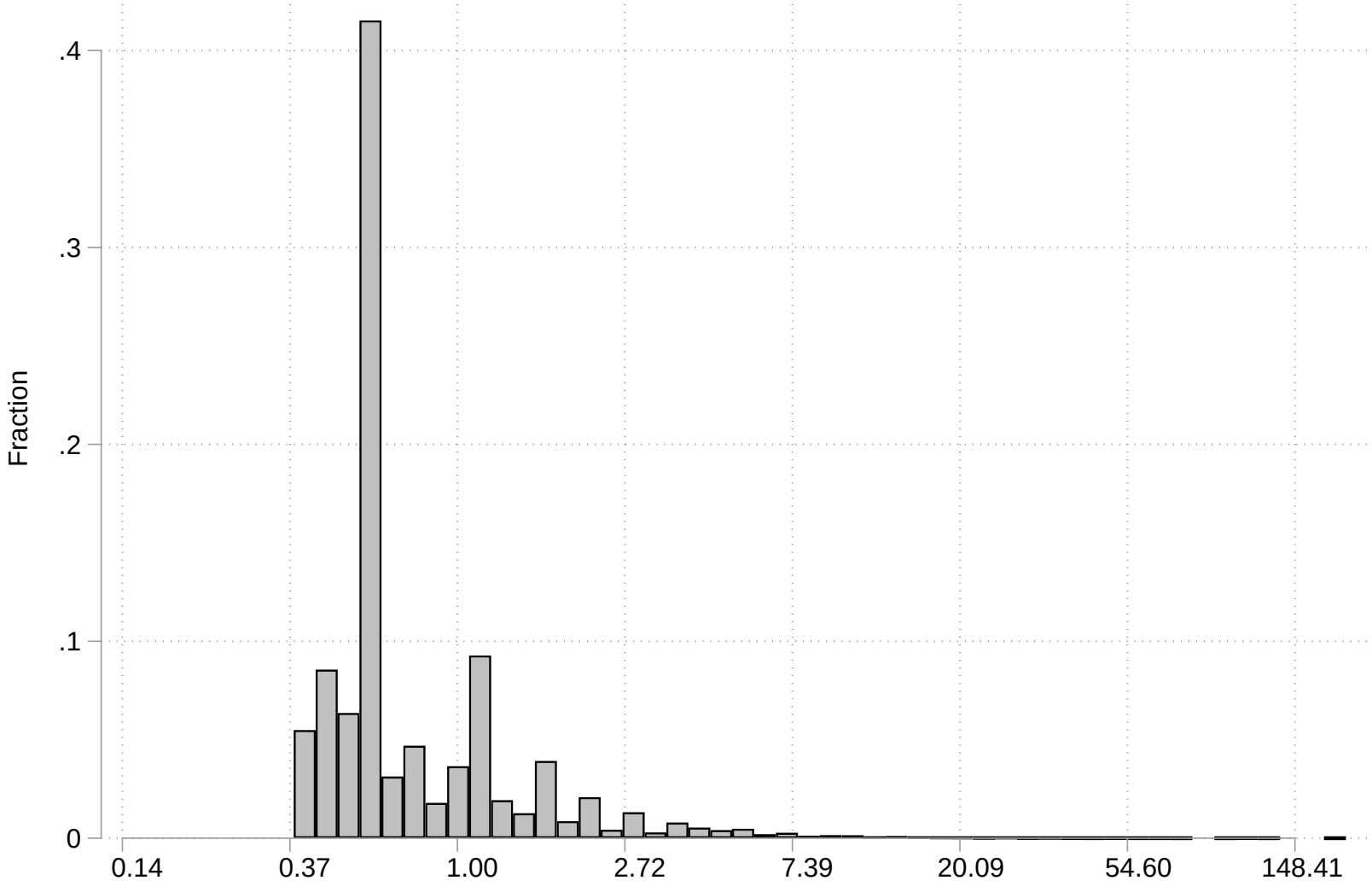
PANEL A: FIRM-QUARTER	Mean	Median	St. Dev.	Min	Max	*N*
$\text{PRisk}_{i,t}$ (standardized)	0.70	0.37	1.00	0.00	6.08	176,173
$\text{Assets}_{i,t}$ (millions)	15,271	1,217	97,502	0.13	3,069,706	173,887
$\text{Realized volatility}_{i,t}$ (standardized)	1.52	1.27	1.00	0.21	8.31	162,153
$\text{Implied volatility}_{i,t}$ (standardized)	2.05	1.82	1.00	0.46	6.31	115,059
$\text{Earnings announcement surprise}_{i,t}$	-0.01	0.00	1.43	-235.83	301.81	161,403
$\text{Stock return 7 days prior to earnings call}_{i,t}$	0.00	0.00	0.02	-0.24	0.40	148,196
Investment rate, $I_{i,t}/K_{i,t-1}$	0.11	0.09	0.11	-0.03	1.07	119,853
$\Delta\text{capex guidance}_{i,t}/\text{capex guidance}_{i,t-1}$	0.01	0.00	0.16	-0.44	0.87	22,520
$\Delta\text{sales}_{i,t}/\text{sales}_{i,t-1}$	0.05	0.02	0.35	-0.98	3.46	173,887
$\text{Lobby expense}_{i,t}$ (thousands)	80.08	0.00	381.08	0.00	15,460.00	147,228
$\text{Donation expense}_{i,t}$ (thousands)	5.13	0.00	27.71	0.00	924.50	176,173
$\#\ \text{of recipients}_{i,t}$	2.73	0.00	14.01	0.00	521.00	176,173
$\text{Hedge}_{i,t}$	0.06	0.00	0.24	0.00	1.00	176,173
$\text{Federal contracts}_{i,t}$ (thousands)	3,516	0.00	49,488	0.00	3,841,392	162,124
$\text{PRisk Economic Policy \& Budget}_{i,t}$ (standardized)	0.48	0.22	1.00	0.00	64.75	176,173
$\text{PRisk Environment }_{i,t}$ (standardized)	0.33	0.13	1.00	0.00	88.78	176,173
$\text{PRisk Trade}_{i,t}$	0.30	0.10	1.00	0.00	164.55	176,173
$\text{PRisk Institutions \& Political Process}_{i,t}$ (standardized)	0.39	0.16	1.00	0.00	71.69	176,173
$\text{PRisk Health}_{i,t}$ (standardized)	0.27	0.10	1.00	0.00	73.02	176,173
$\text{PRisk Security \& Defense}_{i,t}$ (standardized)	0.42	0.19	1.00	0.00	123.42	176,173
$\text{PRisk Tax Policy}_{i,t}$	0.37	0.15	1.00	0.00	97.37	176,173
$\text{PRisk Technology \& Infrastructure}_{i,t}$ (standardized)	0.41	0.17	1.00	0.00	66.67	176,173

Summary statistics: Firm-topic-quarter and firm-annual data

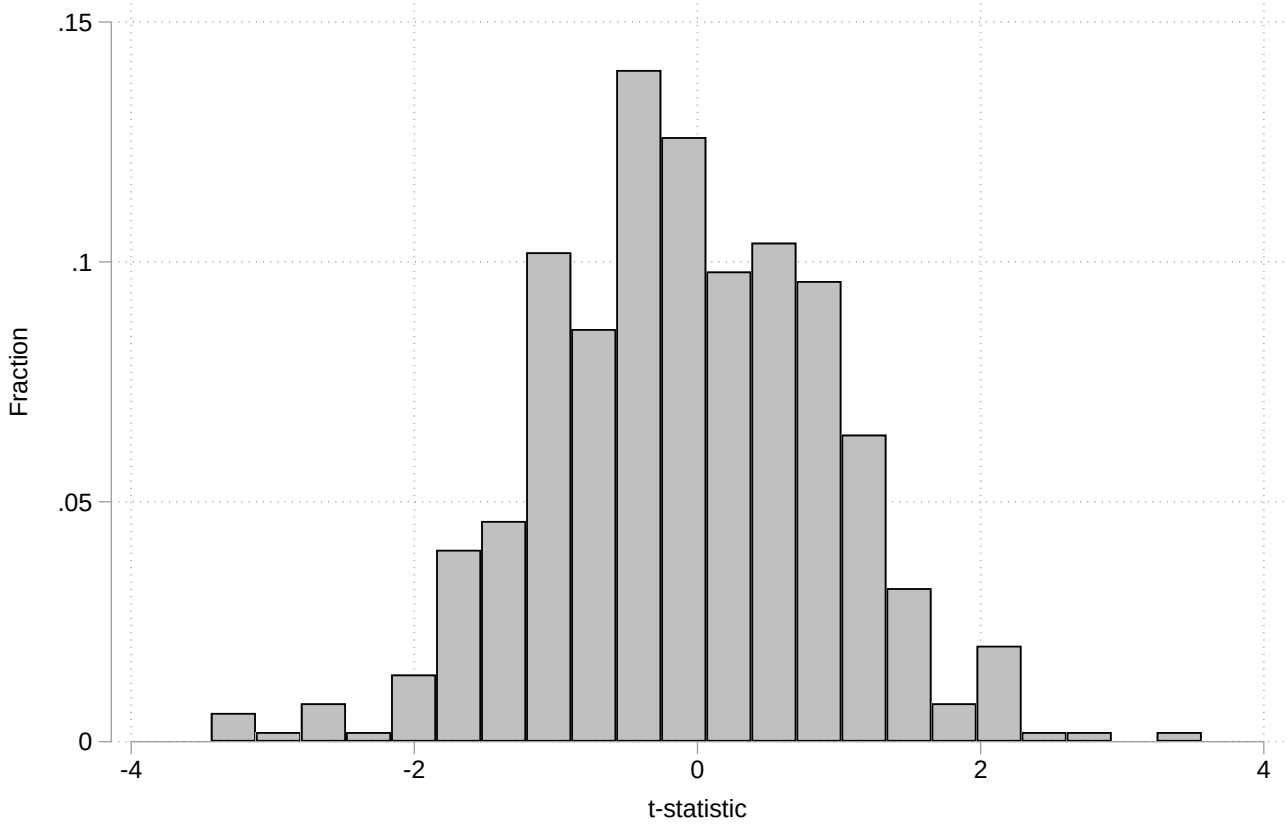
PANEL C: FIRM-TOPIC-QUARTER	Mean	Median	St. Dev.	Min	Max	*N*
$\text{PRisk}^{T}_{i,t}$ (standardized)	0.61	0.27	1.00	0.00	6.34	1,177,824
$\text{Lobby}^{T}_{i,t}$ ($\mathbb{1}$)	0.07	0.00	0.25	0.00	1.00	1,177,824

PANEL B: FIRM-YEAR	Mean	Median	St. Dev.	Min	Max	*N*
$\text{PRisk}_{i,t}$ (standardized)	0.90	0.59	1.00	0.00	5.97	48,679
$\Delta\text{emp}_{i,t}/\text{emp}_{i,t-1}$	0.07	0.03	0.30	-0.78	2.50	45,930

Distribution of bigram scores



t-statistics from placebo regressions



500 repetitions; number of false positives and negatives at two-sided 95% Confidence is 2.8 and 2.6 percent, respectively.

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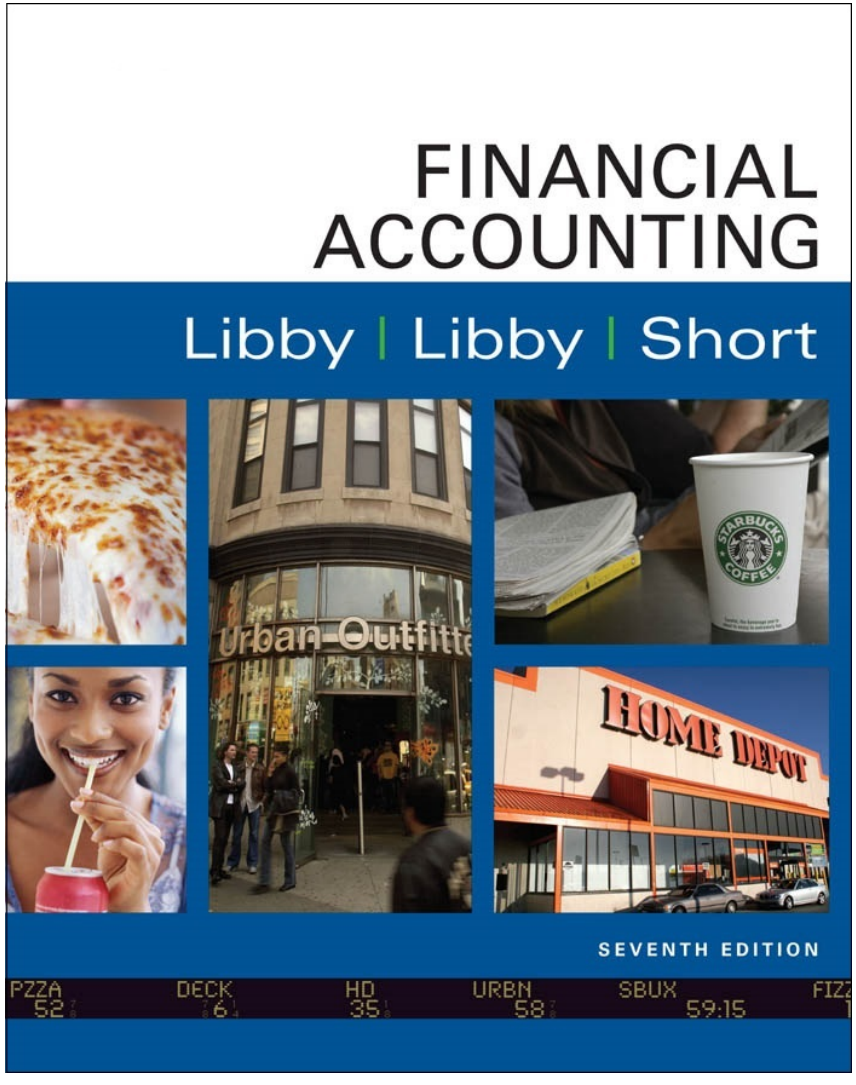
Libby, Libby & Short, 2011



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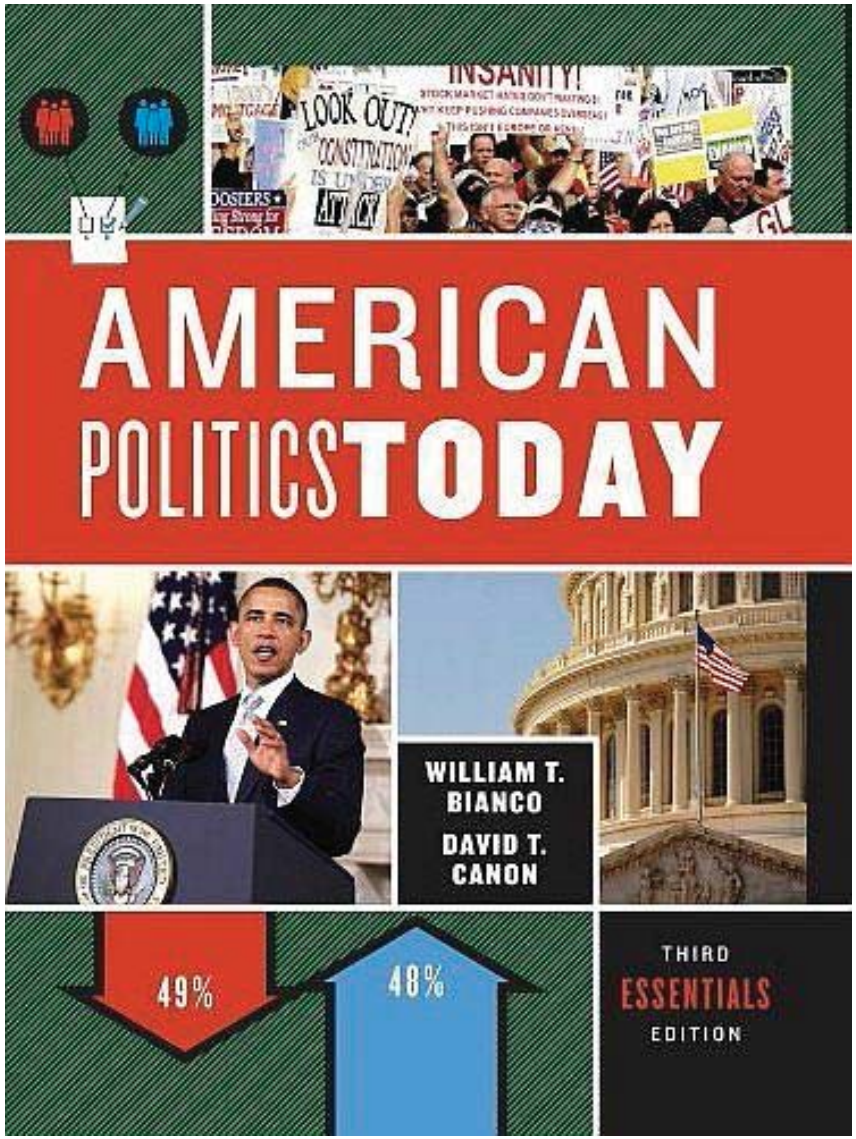
Bianco & Canon, 2013



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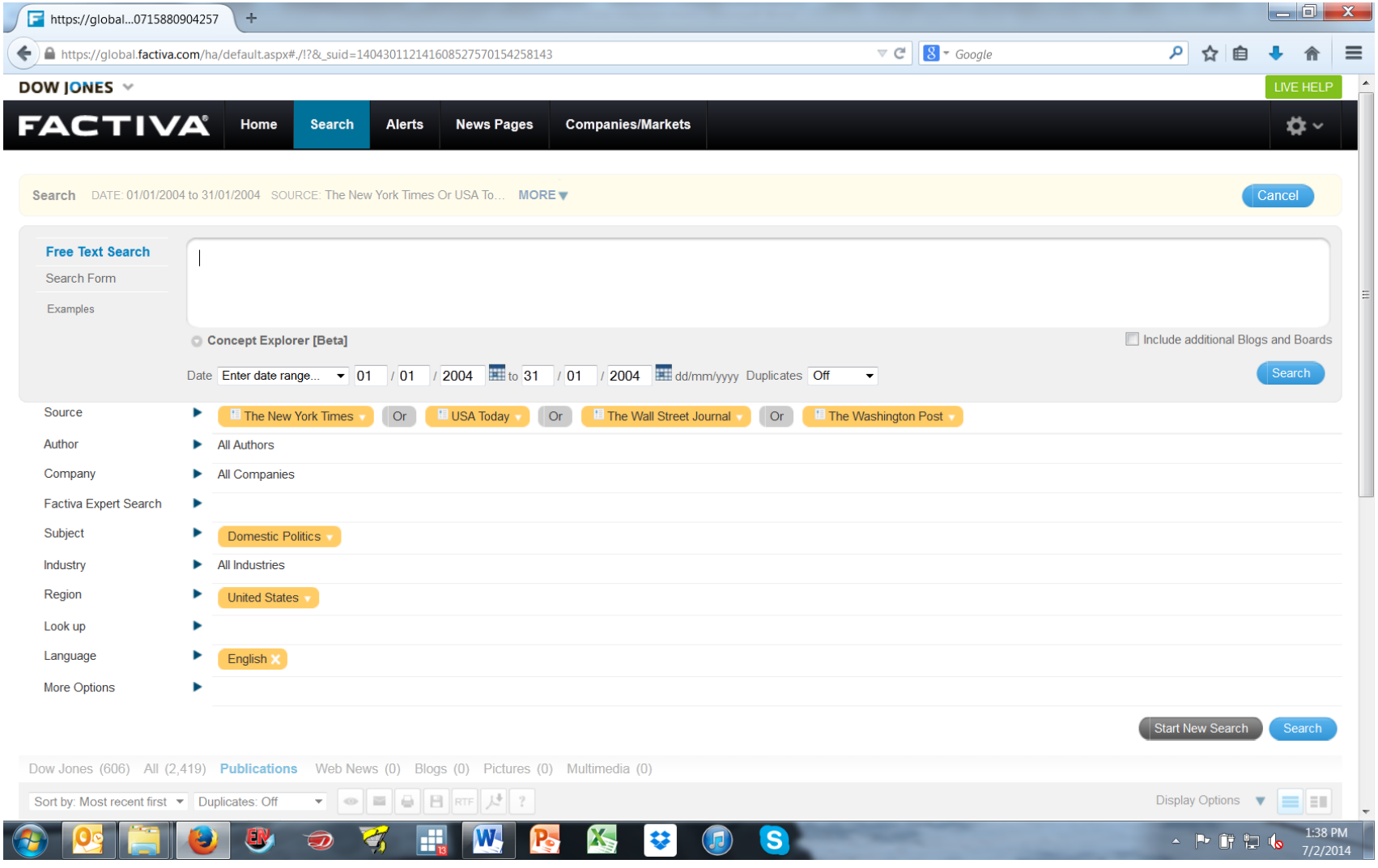
Factiva newspaper articles



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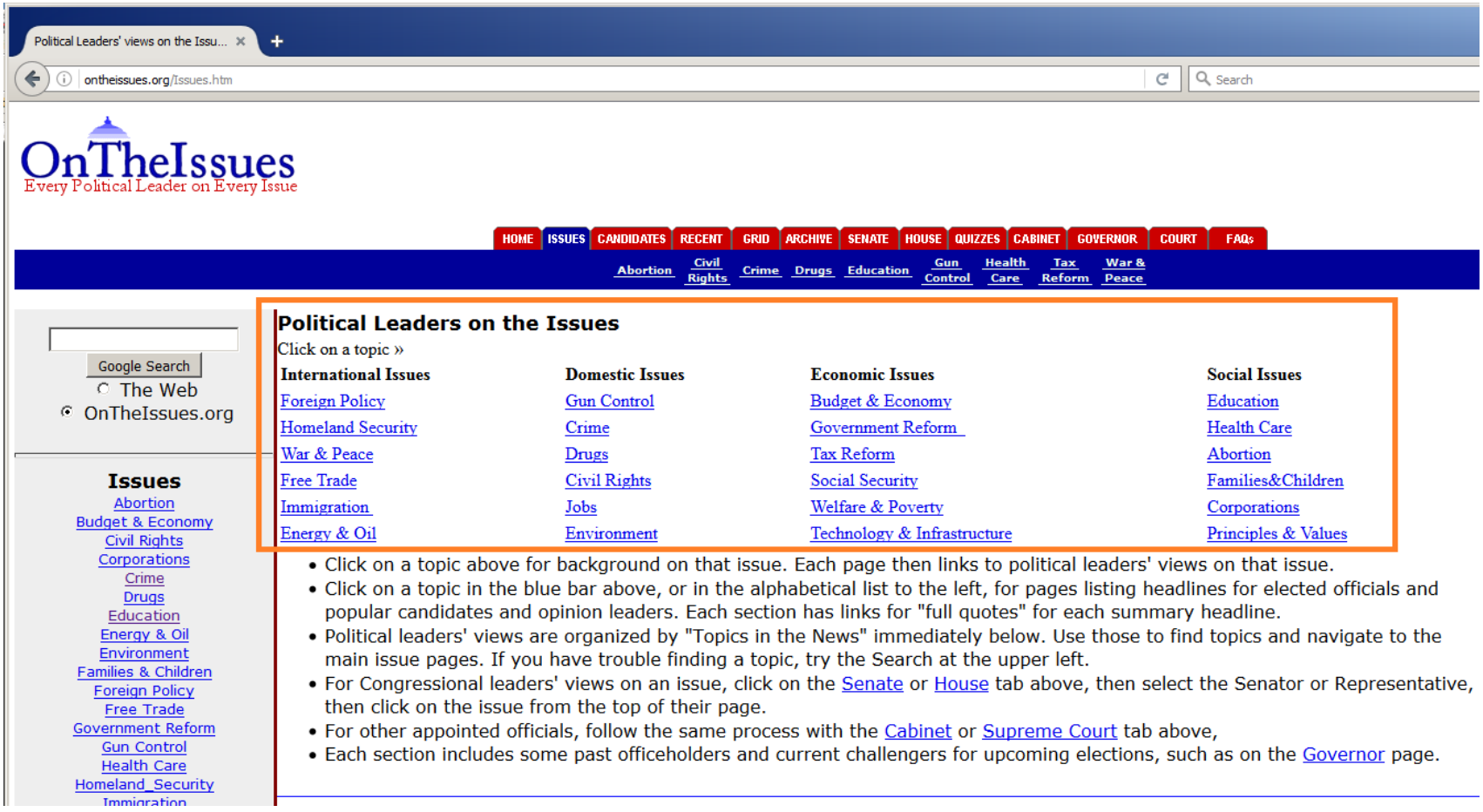
Screenshot from OnTheIssues.org



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Ontheissue.org topic to our topic mapping

Our topic	**OnTheIssues.org topics**
Economic Policy & Budget	Budget & Economy; Jobs; Corporations
Environment	Energy & Oil; Environment
Trade	Free Trade
Institutions & Political Process	Government Reform
Health	Health Care
Security & Defense	Homeland Security; War & Peace
Tax Policy	Tax Reform
Technology & Infrastructure	Technology & Infrastructure
	Not used: Abortion; Civil Rights; Crime; Drugs; Education; Families & Children; Foreign Policy; Gun Control; Immigration; Principles & Values; Social Security; Welfare & Poverty

Lobby issue to topic mapping, part #1

Political Topic	Lobbying issues
Economic Policy & Regulation	Accounting; Advertising; Apparel, Clothing, & Textiles; Arts & Entertainment; Automotive Industry; Aviation, Airlines & Airports; Banking; Bankruptcy; Beverage Industry; Chemical Industry; Consumer Product Safety; Copyright, Patent & Trademark; District of Columbia; Economics & Economic Development; Federal Budget & Appropriations; Finance; Food Industry; Gaming, Gambling & Casinos; Manufacturing, Insurance; Labor, Antitrust & Workplace; Marine, Boats & Fisheries; Media Information & Publishing; Minting/Money/Gold Standard; Radio & TV Broadcasting; Railroads; Roads & Highways; Small Business; Telecommunications; Tobacco; Transportation; Travel & Tourism; Trucking & Shipping; Unemployment
Environment	Agriculture; Animals; Clean Air & Water; Environment & Superfund; Fuel, Gas & Oil; Hazardous & Solid Waste; Natural Resources; Real Estate & Land Use; Utilities

Lobby issue to topic mapping, part #2

Political Topic	**Lobbying issues**
Trade	Commodities; Foreign Relations; Postal; Tariffs; Trade
Institutions & Political Process	Government Issues; Torts
Health	Health Issues; Medicare & Medicaid; Medical Research & Clinical Labs; Pharmacy
Security & Defence	Defense; Disaster & Emergency Planning; Homeland Security; Intelligence; Veterans Affairs
Tax Policy	Taxes
Technology & Infrastructure	Aerospace; Computers & Information Technology; Science & Technology