Aggregate and Idiosyncratic Political Risk:

Measurement and Effects

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Motivation

- Political decisions on regulation, taxation, government expenditure have a major impact on business environment.
- Outcomes of these decisions often hard to predict (Brexit, government shutdown, health care, immigration reforms).
- Effects of risk on behavior of households and firms might outweigh potential upside of well-meaning reforms.
- **How do firms react to political risk?**

Main issue:

- Lack of measurement of firm-level political risk.

This paper:

- Develop a novel, firm-level, measure of political risk based on textual analysis of conference call transcripts.
- Decompose political risk by topic.
- Study reactions to aggregate and idiosyncratic political risk

Main Findings

1. Idiosyncratic political risk associated with retrenching of hiring and investment. Largest effects of risk associated w/ corporate regulation, health care, and government reform.
2. 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).
3. Generally smaller associations of stock return volatility, investment (but not hiring) with idiosyncratic than aggregate political risk.
4. Nevertheless 2/3rds of variation in political risk is idiosyncratic, identity of firms most affected changes over time and within sector.
5. Dispersion of idiosyncratic political risk increases when aggregate political risk is high.

Contribution

- Value of political connections. (Fisman, 2001; Leuz & Oberholzer-Gee 2006; Faccio, 2004; Tahoun 2014; Acemoglu, Hassan & Tahoun, 2015; Akey & Lewellen, 2016, ...)

→ Show that firms manage political uncertainty by cultivating connections to politicians.

- Measurement of political uncertainty. (Baker, Bloom & Davis, 2016)

→ Introduce a firm- and time-specific measure that can be decomposed by topic.

- Effect of political risk on asset prices, cost of capital, macroeconomic fluctuations. Kelly, Pastor & Veronesi (2015), Koijen, Philipson, and Uhlig (2016), Caldera & al. (2016)

→ Document firm-level effects of political risk, including idiosyncratic political risk.

- Pattern-based sequence classification methods (Song& Wu, 2009; Manning & al. 2008)

Outline

Conference Call Transcripts

- Complete transcripts of 89,897 earnings conference calls of US listed firms 2002-10 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).
- Conversation typically centers around uncertainties that the firm is facing. (Hollander, 2010; Bowen, 2002, 2003; Matsumoto, 2011; Huang, 2015)

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:

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

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.

Topic-based Measures

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 weight also with inverse document frequency.

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

Training Libraries

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

- Textbook on financial accounting (Libby, 2011)
- 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)
   - Political vs non-political newspapers articles
2. **Topic-Based** ($\{PRisk_{it}^{T}\}$)
   - Text contained in 24 topics from OnTheIssues.org.
   - Contains snippets from newspapers, speeches, press releases, books, voting records, and bill sponsorships identifying where candidates for political office stand on each of 24 topics (health care, foreign policy, defense, ...)

▸ List of synonyms

Outline

Validation

1. Bigrams with highest scores intuitively linked to politics ('the constitution,' 'public opinion,' 'interest groups,' 'the FAA' ...)
2. Transcripts with highest $PRisk_{it}$ indeed center around discussions about ballot initiatives, legislation, regulation, government expenditure,...
3. Mean of $PRisk_{it}$ across firms highly correlated with Baker, Bloom and Davis' EPU index (0.83).
4. $PRisk_{it}$ significantly higher around federal elections.
5. Sectors with highest $PRisk_{it}$ are finance, construction, ...
6. Aggregate & idiosyncratic variation in $PRisk_{it}$ significantly related to realized & implied stock return volatility.

Validation of topic-based measures

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

Firm Name	Call Date	$\text{PRisk}_{i,t}$ (standardized)	Text surrounding bigram with highest weight ($f_{b,\mathbb{P}} / B_{\mathbb{P}}$)
NEVADA GOLD CASINOS INC	10-Sep-08	37.36	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-10	34.98	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-09	31.82	market acceptance the economic and business environment and the impact **of government pressures** currency —RISKS— capacity efficiency and supply **constraints and** other
Applied Energetics, Inc.	11-May-09	29.29	of products and the —UNCERTAINTY— of the timing and **magnitude of government funding and** customer orders **dependence on** sales **to government** customers
FPIC Insurance Group, Inc.	30-Oct-08	28.01	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-08	27.59	was **an accurate** metaphor and really given all the —UNCERTAINTIES— **of government involvement** in operations and business activities and given the capital
World Acceptance Corporation	25-Jul-06	26.46	management analyst i wanted to followup on the regulatory **front the states** that you had **mentioned the** —POSSIBILITY— of some positive **legislation**
Magellan Health Services	29-Jul-10	25.31	future so this is a time of quite —UNCERTAINTY— for **the states** they are not **sure what** the fmap will be if

back

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

Firm Name	Call Date	$\text{PRisk}_{i,t}$ (standardized)	Text surrounding bigram with highest weight ($f_{b,\mathbb{P}} / B_{\mathbb{P}}$)
Piedmont Natural Gas	9-Jun-09	24.76	your point as you will recall in all three of **the states** that we have serve jim we are —EXPOSED— only to
Platinum Underwriters Holdings Ltd	18-Feb-10	23.95	we have had historically had a very small participation in **the political** —RISK— market backing only a couple of players **parties that**
Mechanical Technology Inc.	12-May-08	21.78	measurement business on a **small number** customers an potential loss **of government funding** —RISK— related to developing mobion direct methanol **fuel cells**
Advanced Photonix	14-Aug-06	19.04	market due primarily to the —UNPREDICTABLE— nature of the timing **of government contracts** overall revenue growth met the companys expectations for the
TravelCenters of America	24-Feb-10	18.75	in the future whether due to speculation or the impact **of government policy such** an increase or the —POSSIBILITY— of one requires
Metalink	25-Jul-02	18.36	important to alcatel especially given the situation **economic situation** in **the states** ph and **the** —**THREAT**— **that** alcatel **is seeing** in china
GTSI Corp.	7-Aug-08	17.85	is somewhat —**UNCERTAIN**— **but** thank god we a whole bunch **of government** bureaucrats **that spend** the money that will still be in
TRC Companies	12-Aug-04	17.76	and this is where we are going to allocate it **the states** are —HESITANT— to move forward so until the tbbill **is**

back

Association with stock return volatility

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

	Realized volatility$_{i,t}$ (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
PRisk$_{i,t}$ (standardized)	0.187***	0.076***	0.028***	0.021***	0.036***	0.025***
	(0.013)	(0.012)	(0.007)	(0.007)	(0.008)	(0.007)
Mean of PRisk$_{i,t}$ (standardized)		0.441***				
		(0.006)				
Stock return 7 days prior$_{i,t}$					4.233***	
					(0.664)	
Earnings announcement surprise$_{i,t}$						–0.040
						(0.029)
N	80,370	80,370	80,370	80,370	62,156	77,946
Time FE	no	no	yes	yes	yes	yes
Firm FE	no	no	yes	yes	yes	yes
Sector*time FE	no	no	no	yes	no	no

Go to ▸ t-statistic distribution from placebo regressions

Outline

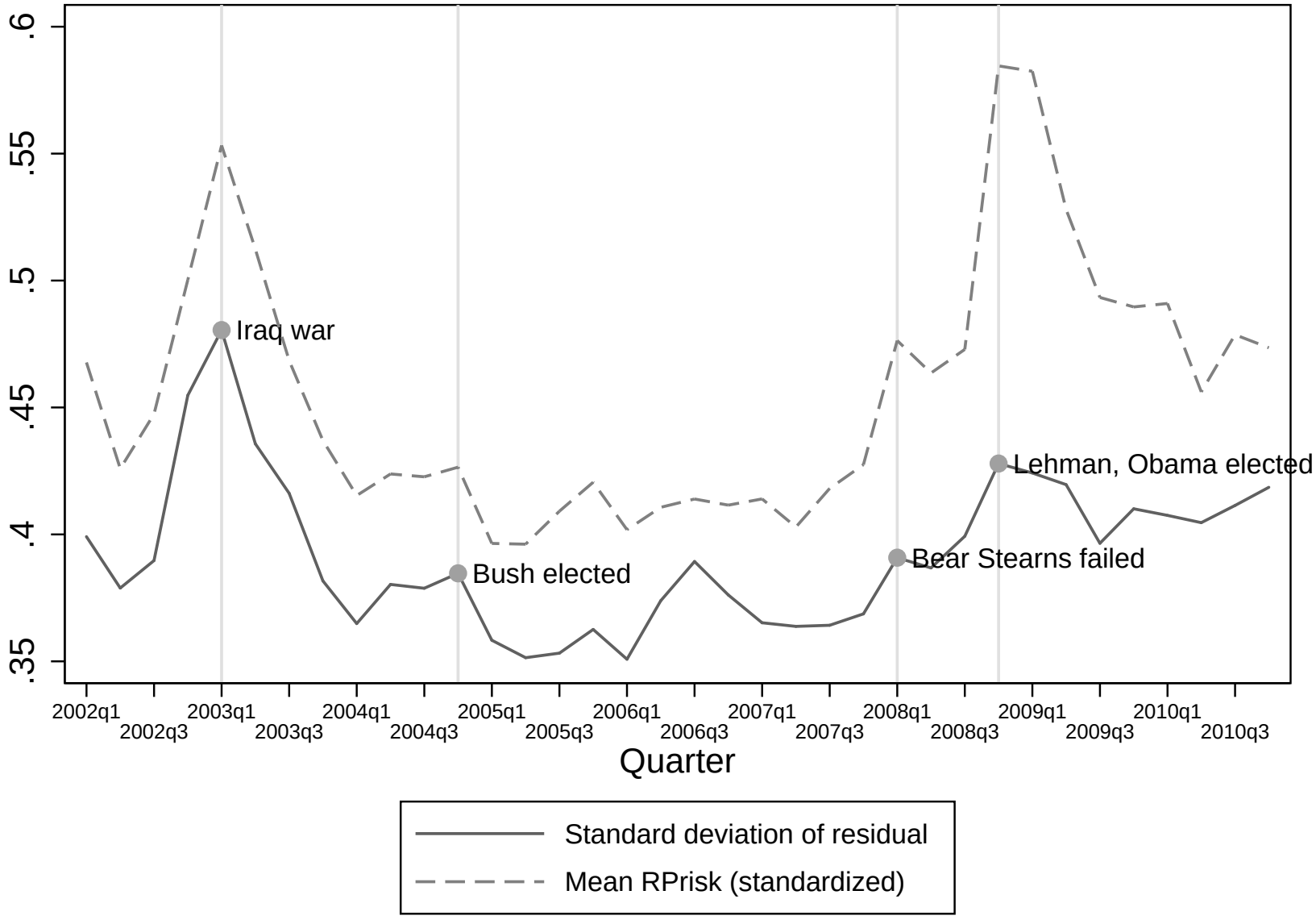
Idiosyncratic Political Risk

	Realized volatility$_{i,t}$ (standardized)				
	(1)	(2)	(3)	(4)	(5)
PRisk$_{i,t}$ (standardized)	0.029***	0.029***	0.048***	0.049***	0.046***
	(0.007)	(0.007)	(0.016)	(0.016)	(0.016)
EPU beta$_{i,t}$ × mean of PRisk$_{i,t}$	71.313				
	(50.917)				
EPU beta$_{i,t}$ × EPU$_t$		41.349*			
		(21.644)			
Log(1+$ federal contracts$_{i,t}$)				–0.001	0.093***
				(0.004)	(0.015)
Log(1+$ federal contracts$_{i,t}$) × mean of PRisk$_{i,t}$					–0.014***
					(0.002)
N	78,248	78,248	9,099	9,099	9,099
Time FE	yes	yes	yes	yes	yes
Firm FE	yes	yes	yes	yes	yes
Sector*time FE	no	no	no	no	no

- ANOVA: Aggregate 0.7%, Idiosyncratic 67% of variation

Dispersion of idiosyncratic $PRisk_{i,t}$ across firms

Idiosyncratic risk increases when aggregate risk is high.



Outline

Lobbying by political topic

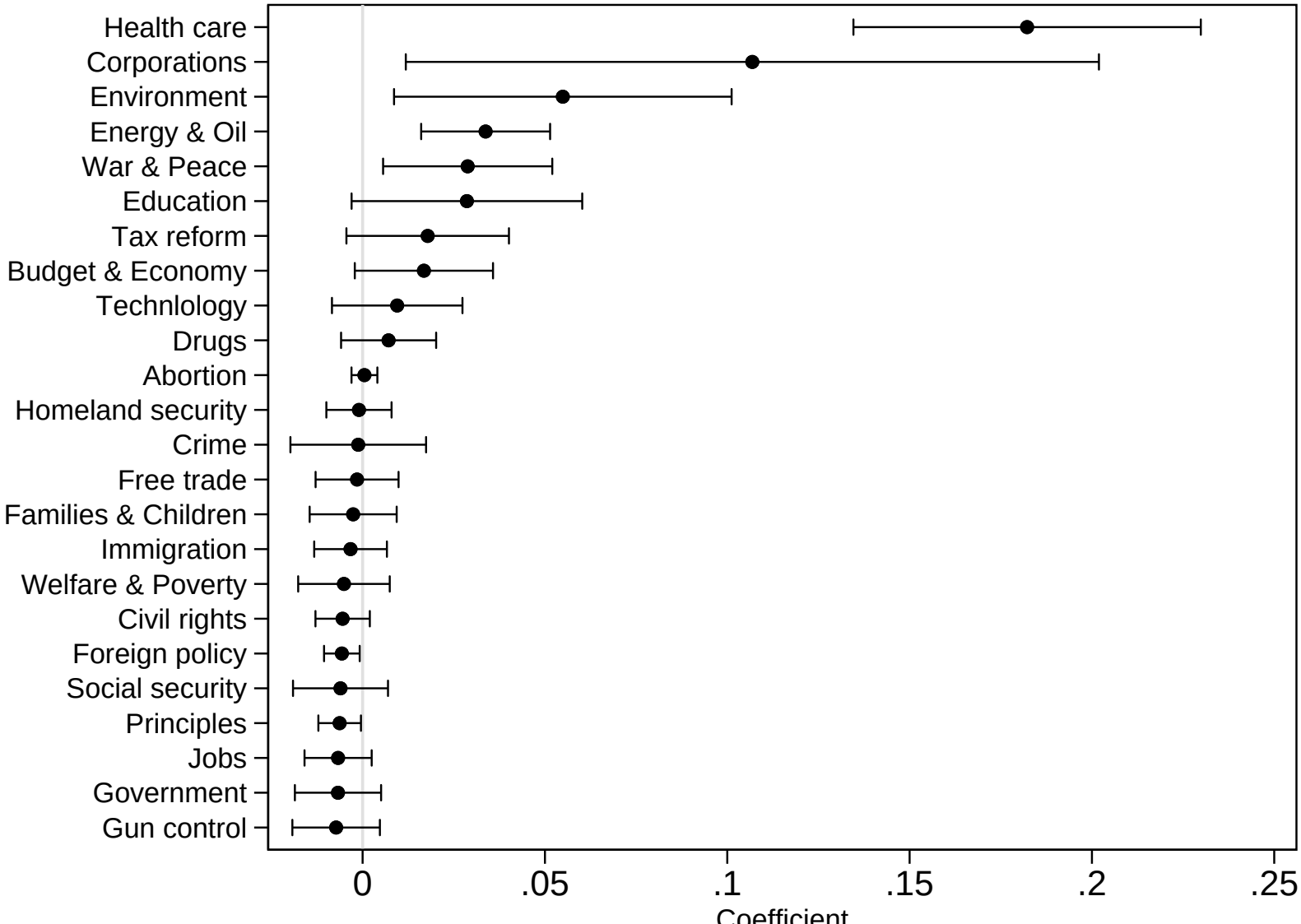
- Lobbying expenses by topic (Center for Responsive Politics), manually match each of 80 topics from disclosure forms to our 24 topic-based measures of $PRisk_{it}^{T}$.

$$Lobbying_{it}^{T} = \delta_i + \delta_t + \delta_T + \beta PRisk_{it}^{T} + \gamma' X_{it} + \epsilon_{it}$$

	Log(1+$ lobby)$_{i,\tau,t}^{T}$				
	(1)	(2)	(3)	(4)	(5)
PRisk$_{i,t}^{T}$ (standardized)	0.051***	0.052***	0.044***	0.045***	0.004**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.002)
Time FE	yes	yes	yes	implied	yes
Firm FE	no	yes	yes	yes	implied
Topic FE	no	no	yes	yes	implied
SIC2*time FE	no	no	no	yes	no
Firm*topic FE	no	no	no	no	yes
N	1,437,144	1,437,144	1,437,144	1,437,144	1,434,456

Heterogeneity across topics

$$Lobbying_{it}^{T} = \delta_i + \delta_t + \delta_T + \zeta^T \delta_T \times PRisk_{it}^{T} + \gamma' X_{it} + \epsilon_{it}$$



Lobbying by political topic: heterogeneity across firms

	Log(1+$ lobby)$_{i,\tau,t}$			
	(1)	(2)	(3)	(4)
$\text{PRisk}^T_{i,t}$	0.015***	0.047***	0.038***	0.051***
	(0.004)	(0.007)	(0.008)	(0.007)
$\text{PRisk}^T_{i,t} \times \mathbb{1}\{\text{av firm assets} > \text{median}\}_i$	0.063***			
	(0.012)			
$\text{PRisk}^T_{i,t} \times \mathbb{1}\{\text{av dependence on federal gov} > \text{median}\}_{s,t}$		0.012		
		(0.015)		
$\text{PRisk}^T_{i,t} \times \mathbb{1}\{\text{av state corruption rate} > \text{median}\}_{s,t}$			0.025**	
			(0.011)	
$\text{PRisk}^T_{i,t} \times \mathbb{1}\{\text{federal election quarter}\}_t$				–0.003
				(0.006)
$\text{Log(assets)}_{i,t}$		0.030***	0.030***	0.031***
		(0.005)	(0.005)	(0.005)
Year-quarter FE	yes	yes	yes	yes
Firm FE	yes	yes	yes	yes
Topic FE	yes	yes	yes	yes
N	1,437,144	1,253,952	1,253,952	1,253,952

Lobbying by political topic: Causality

	Log(1+$ lobby)$^T_{i,t}$		$PRisk^T_{i,t}$ (standardized)
	(1)	(2)	(3)
$PRisk^T_{i,t}$ (standardized)	0.004**	0.032***	
	(0.002)	(0.010)	
$PRisk^T_{i,t-1}$ (standardized)	0.000		
	(0.005)		
$PRisk^T_{i,t+1}$ (standardized)	0.004		
	(0.005)		
$PRisk^T_{a,t}$ (industry average, standardized)			0.343***
			(0.024)
IV specification	no	IV	first stage
Time FE	yes	yes	yes
Firm FE	implied	implied	implied
Topic FE	implied	implied	implied
Firm*topic FE	yes	yes	yes
N	1,350,288	1,434,456	1,434,456

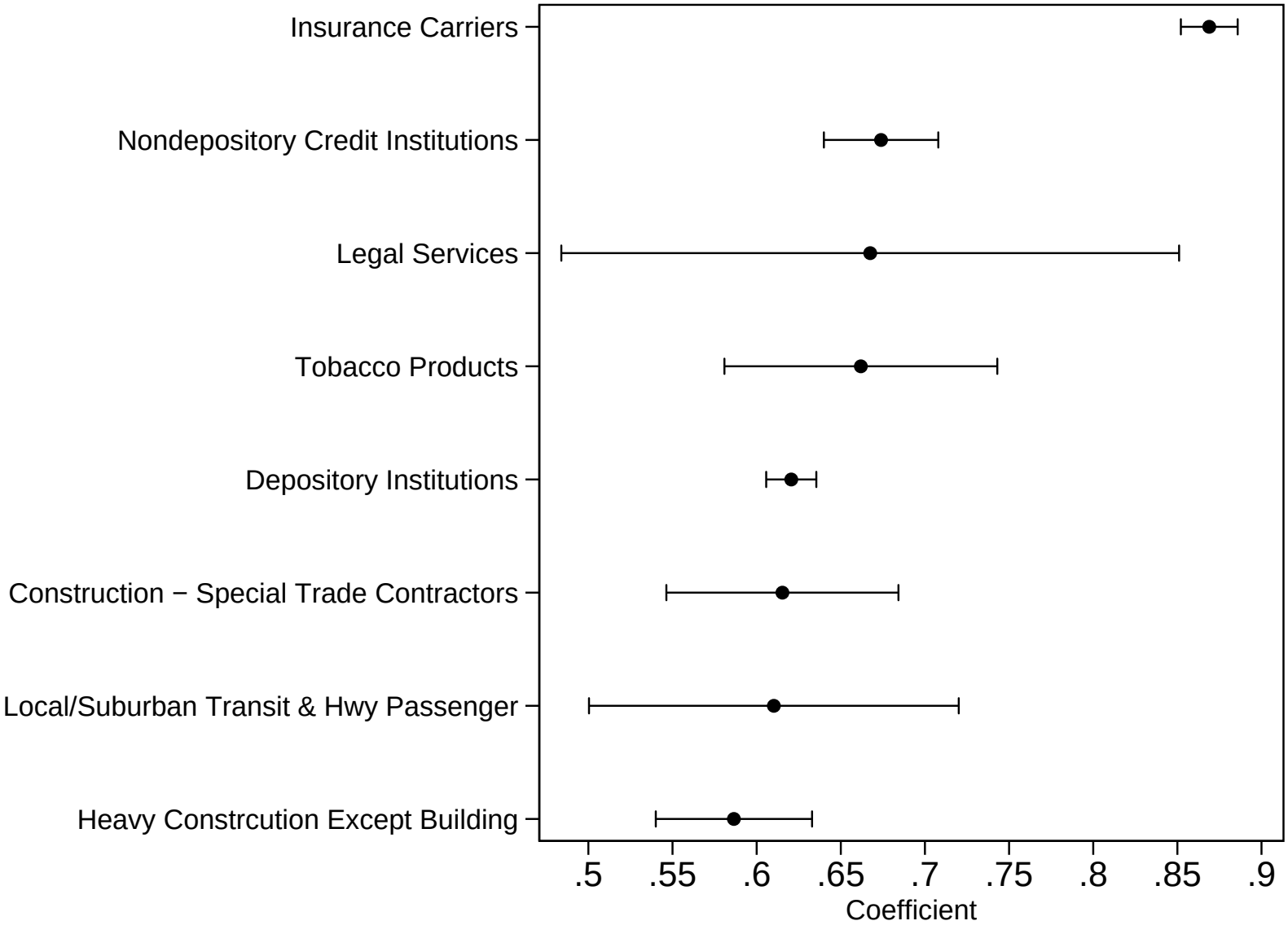
Idiosyncratic $\text{PRisk}_{i,t}$, investment, and hiring

	$I_{i,t}/K_{i,t-1}$ * 100			$\Delta\text{emp}_{i,t}/\text{emp}_{i,t-1}$ * 100		
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{PRisk}_{i,t}$ (standardized)	–0.191***	–0.165**	–0.180*	–1.169***	–1.128***	–2.001***
	(0.070)	(0.071)	(0.103)	(0.326)	(0.329)	(0.506)
$\text{PRisk}_{i,t} \times \mathbb{1}\{\text{assets}_{i,t} > \text{median assets}\}$			–0.024			1.614***
			(0.140)			(0.624)
$\mathbb{1}\{\text{assets}_{i,t} > \text{median assets}\}$			–0.368			–1.334
			(0.281)			(0.873)
Time FE	yes	yes	yes	yes	yes	yes
Firm FE	yes	yes	yes	yes	yes	yes
SIC2*time FE	no	yes	no	no	yes	no
N	55,261	55,261	55,261	22,198	22,198	22,198

Conclusion

- Introduced simple, firm-level measure of political risk.
- Firms that are more affected by idiosyncratic political risk experience more volatile stock returns, retrench hiring, and investment.
- 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).
- 2/3rds of variation in political risk is idiosyncratic, identity of firms most affected changes over time and within sector.
- Dispersion of idiosyncratic political risk increases when aggregate political risk is high.

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



Go back

Summary statistics: Firm-year data

	Mean	Median	St. dev.	Min	Max	*N*
$\text{PRisk}_{i,t}$ (not standardized)	121.40	74.68	188.38	0.00	5,009.33	24,261
Log(1+\$ federal contracts$_{i,t}$)	10.23	12.52	7.63	0.00	24.31	2,428
Log(assets$_{i,t}$)	7.02	6.93	2.08	0.16	14.94	23,839
$\Delta\text{emp}_{i,t}/\text{emp}_{i,t-1}$	0.06	0.03	0.19	–0.50	1.00	22,198
Log(1+\$ donation expense$_{i,t}$)	2.15	0.00	4.30	0.00	14.94	24,261
Number of donations$_{i,t}$	13.31	0.00	57.72	0.00	1,387.00	24,261
$\text{Hedge}_{i,t}$	0.10	0.00	0.29	0.00	1.00	24,261

Summary statistics: Firm-quarter data

	Mean	Median	St. dev.	Min	Max	*N*
$\text{PRisk}_{i,t}$ (not standardized)	120.02	58.19	235.58	0.00	8,268.97	85,152
Unrestricted $\text{PRisk}_{i,t}$ (not standardized)	4,717.94	4,612.01	768.75	1,980.20	10,296.14	85,152
Unweighted $\text{PRisk}_{i,t}$ (not standardized)	69.37	49.48	75.14	0.00	1,933.51	85,152
Textbook-based $\text{PRisk}_{i,t}$ (not standardized)	90.44	35.33	209.33	0.00	7,793.15	85,152
$\text{Realized volatility}_{i,t}$	0.03	0.03	0.02	0.00	1.16	81,310
$\text{Implied volatility}_{i,t}$	0.44	0.40	0.21	0.01	2.00	55,152
$\text{Log(1+\$ lobby expense}_{i,t})$	2.43	0.00	4.85	0.00	16.76	61,584
$\Delta\text{sales}_{i,t}/\text{sales}_{i,t-1}$	0.16	0.02	14.90	–28.20	3,964.00	81,581
$I_{i,t}/K_{i,t-1}$	0.10	0.08	0.07	–0.10	0.40	55,266
$(\text{EPS}_{i,t} - \text{EPS}_{i,t-4})/\text{price}_{i,t}$	–0.00	0.00	0.59	–66.19	51.08	80,114
$\text{Log(1+\$ federal contracts}_{i,t})$	10.25	12.59	7.64	0.00	24.31	9,431
$\text{Average stock return 7 days prior to earnings call}_{i,t}$	0.00	0.00	0.01	–0.15	0.31	63,345
$\text{Average stock return 30 days prior to earnings call}_{i,t}$	0.00	0.00	0.01	–0.06	0.11	63,179
$\text{Average stock return 90 days prior to earnings call}_{i,t}$	0.00	0.00	0.00	–0.03	0.08	62,730
$\mathbb{1}\{\text{Presidential elections}\}_t$	0.06	0.00	0.24	0.00	1.00	72,368
$\mathbb{1}\{\text{Congressional elections}\}_{i,t}$	0.20	0.00	0.40	0.00	1.00	72,368
$\mathbb{1}\{\text{State election}\}_{i,t}$	0.30	0.00	0.46	0.00	1.00	72,368
$\text{Log(assets}_{i,t})$	7.09	6.99	2.02	–0.17	15.11	82,540
$\mathbb{1}\{\text{assets}_{i,t} > \text{p50}\}$	0.50	0.50	0.50	0.00	1.00	82,540

Summary statistics: Firm-topic-quarter data

	Mean	Median	St. dev.	Min	Max	*N*
$\text{PRisk}_{i,t}^{T}$ (not standardized)	9.07	0.00	23.98	0.00	2,841.26	2,043,648
$\text{Log(assets}_{i,t})$	7.09	6.99	2.01	0.61	15.11	1,980,960
$\mathbb{1}\{\text{average assets} > \text{p50}\}_{i,t}$	0.50	0.50	0.50	0.00	1.00	1,980,960
$\mathbb{1}\{\text{average dependence on federal gov} > \text{p50}\}_{s}$	0.18	0.00	0.38	0.00	1.00	1,736,832
$\mathbb{1}\{\text{average state corruption rate} > \text{p50}\}_{s}$	0.48	0.00	0.50	0.00	1.00	1,736,832
$\mathbb{1}\{\text{federal election quarter}\}_{t}$	0.23	0.00	0.42	0.00	1.00	1,736,832
$\mathbb{1}\{\text{state election year}\}_{s,t}$	0.30	0.00	0.46	0.00	1.00	1,736,832
$\mathbb{1}\{\text{incumbent not candidate}\}_{s,t}$	0.15	0.00	0.35	0.00	1.00	1,736,832

Top 30 political bigrams used in $\text{PRisk}_{i,t}$

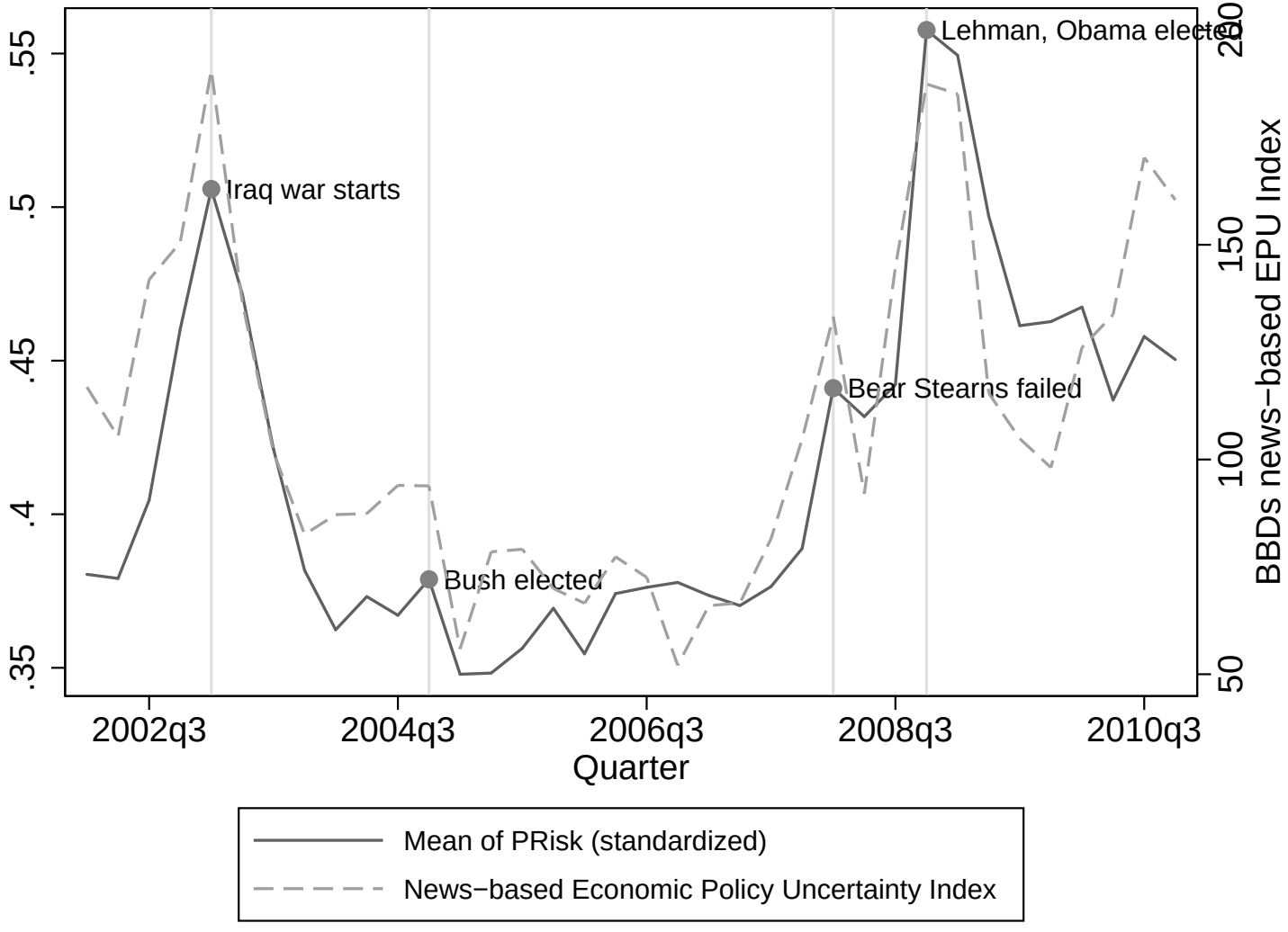
Bigram	$(f_{b,\mathbb{P}}/B_{\mathbb{P}})$*within-transcript frequency
the constitution	84.45
the states	61.08
public opinion	49.98
interest groups	49.74
of government	49.50
in congress	33.21
national government	28.56
the civil	25.61
elected officials	25.36
the political	24.89
politics is	22.65
office of	22.16
the bureaucracy	20.19
for governor	19.65
and senate	19.45
care reform	19.31
government and	18.91
support for	17.03
the epa	16.44
in government	16.25
congress to	15.51
the legislative	15.34
political process	15.27
and social	15.03
government in	14.77
due process	14.77
president obama	14.53
congress the	14.28
tea party	14.03
the republican	14.03

Bigram	$(f_{b,\mathbb{P}}/B_{\mathbb{P}})$*within-transcript frequency
of civil	13.79
court has	13.79
ruled that	13.68
groups and	13.54
the presidential	13.34
civil war	13.30
shall have	13.30
the congress	13.30
new deal	12.56
the constitutional	12.56
governor and	12.48
of representatives	12.06
a yes	12.01
yes no	11.88
african americans	11.82
economic policy	11.82
a political	11.82
of social	11.82
and political	11.78
government policy	11.57
federal courts	11.57
argued that	11.33
the democratic	11.33
the faa	11.30
government the	11.08
president has	10.83
white house	10.83
the politics	10.83
policy is	10.81
general election	10.59

50,422 unique bigrams in total.

back

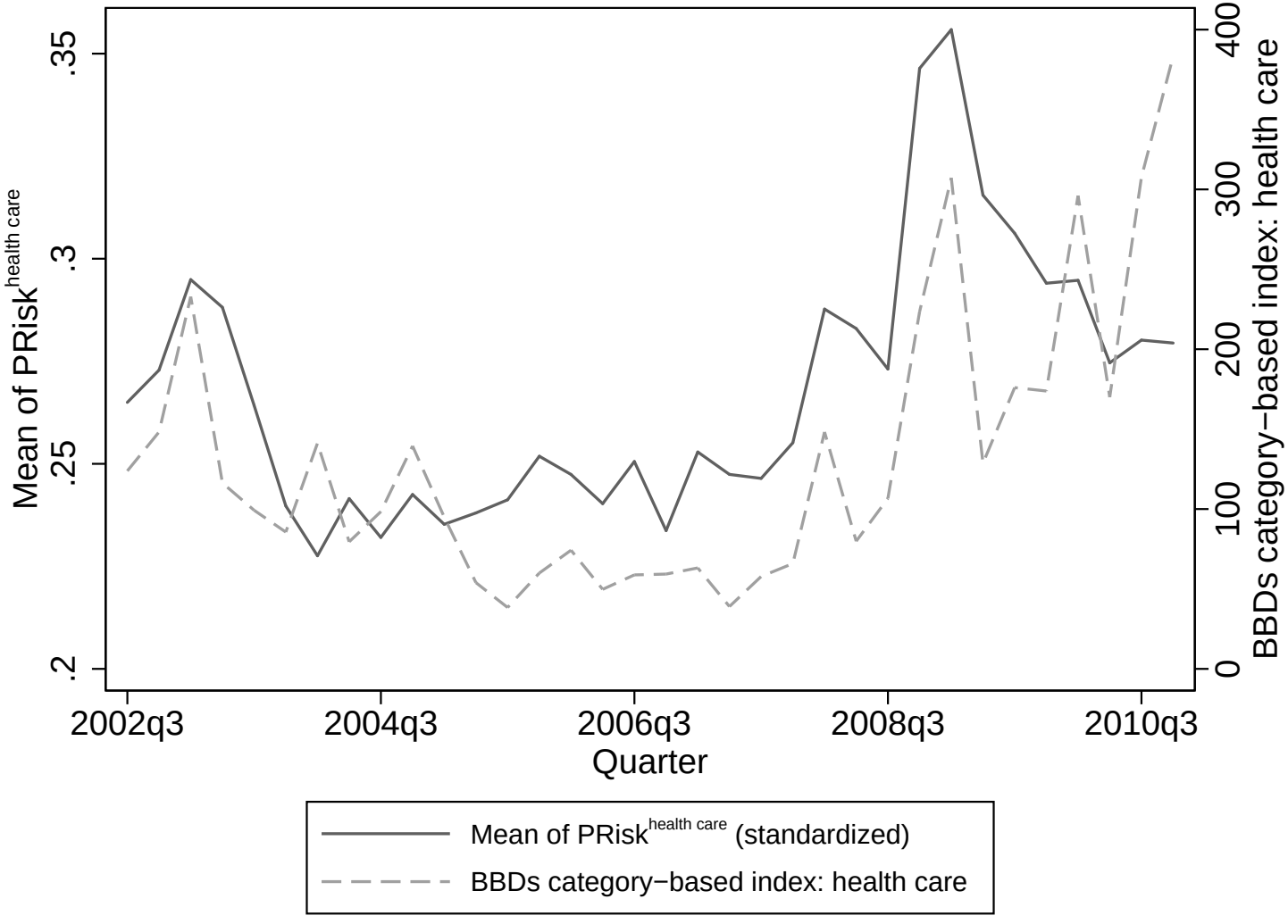
Mean of $PRisk_{i,t}$ across firms



Correlation with BBD newspaper-based measure=0.83.

back

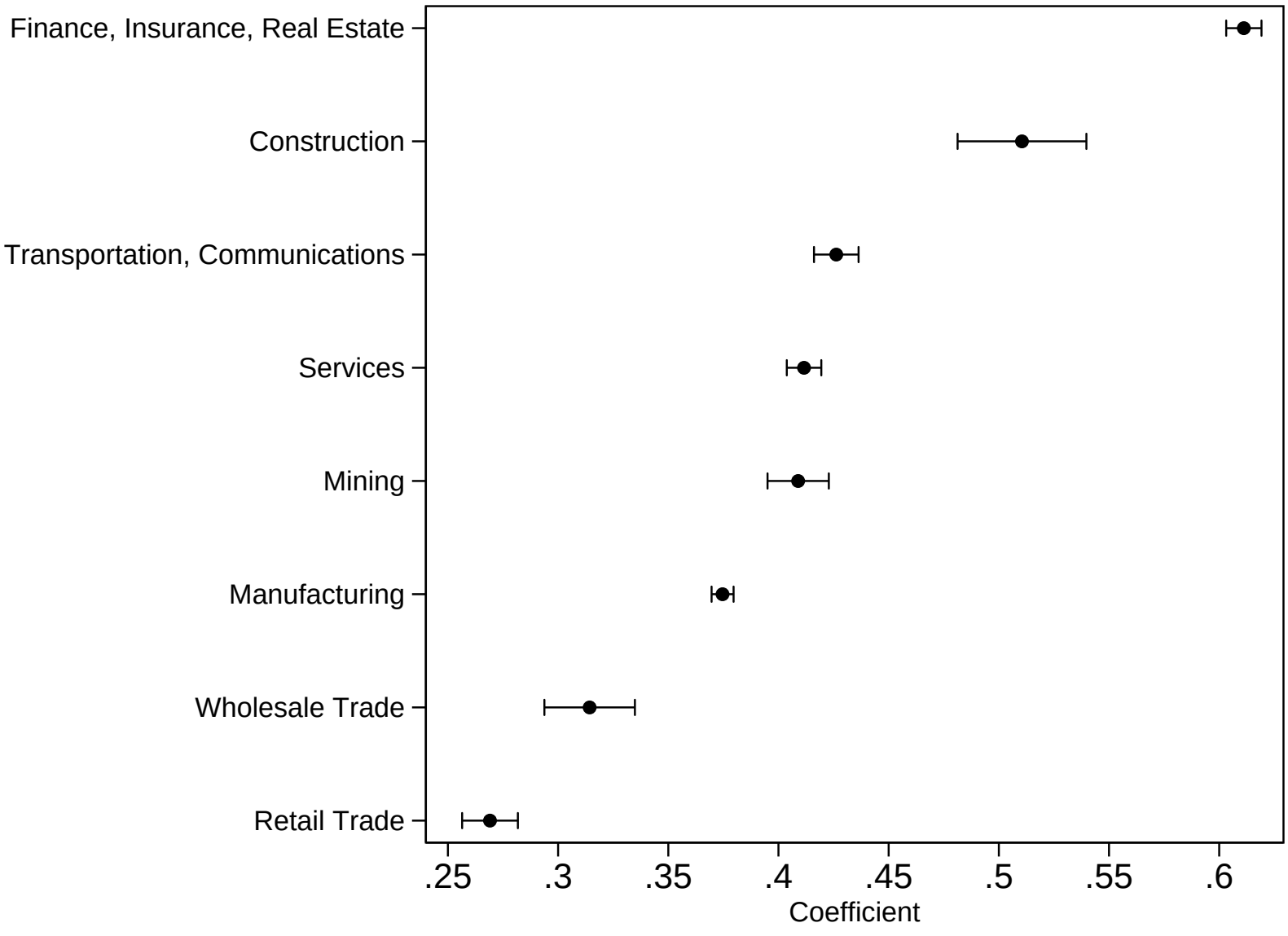
Mean of $PRisk_{i,t}^{HealthCare}$



Correlation with BBD health care measure 0.63.

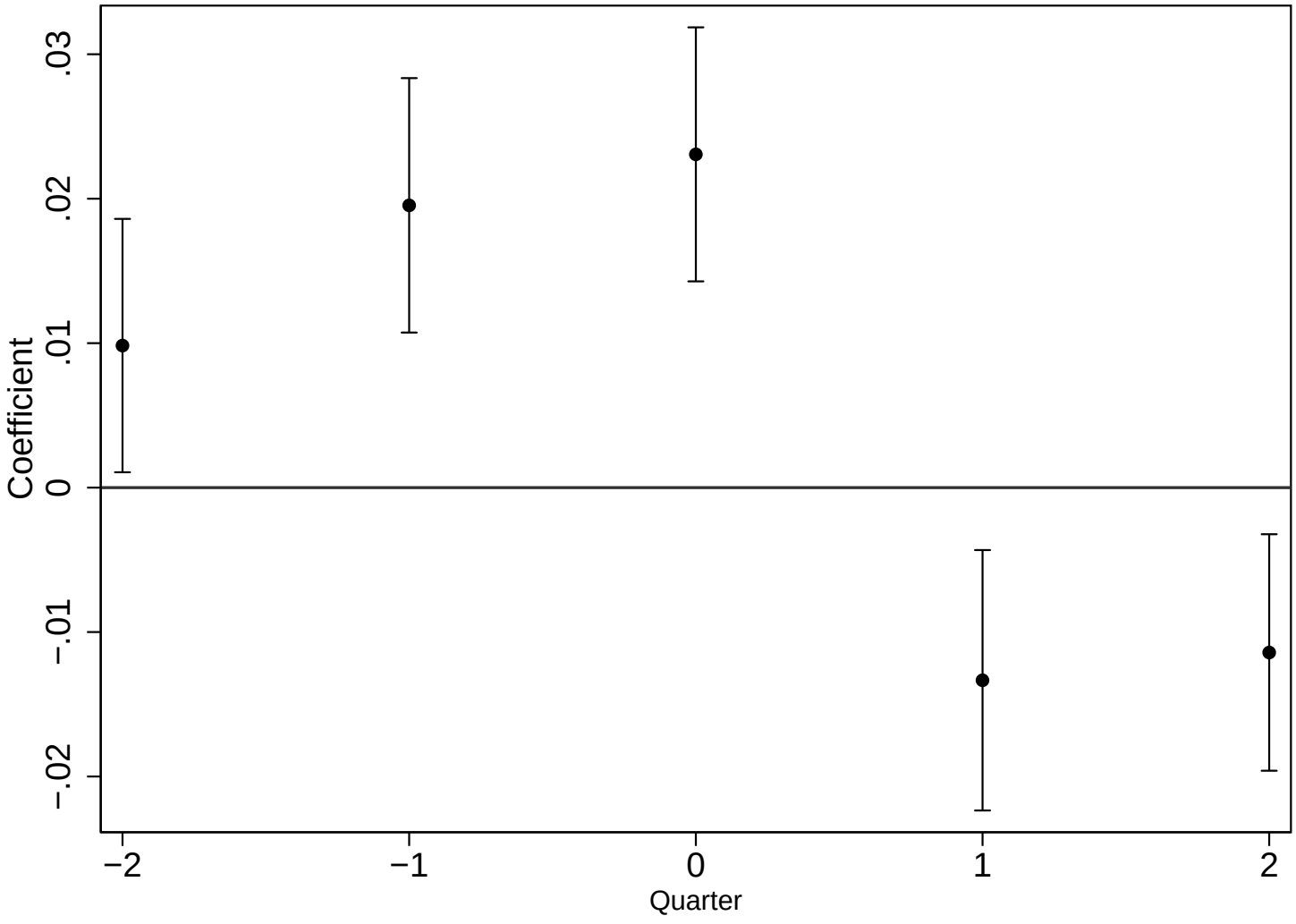
Go to top bigrams by ▸ topic ▸ back

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



Same chart for top 5 two-digit SIC industries back

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



back

Top 10 political bigrams per topic ($T = 24$)

Topic	Top ten bigrams
Abortion	"embryonic stem", "stem cell", "stem cells", "the fetus", "pregnant woman", "litmus test", "of unintended", "cell lines", "taken across", "womens health"
Budget & Economy	"free markets", "home values", "the subprime", "home mortgages", "the deficit", "buy up", "subprime mortgages", "and freddie", "spending freeze", "mortgage industry"
Civil Rights	"the flag", "domestic partners", "the patriot", "the civil", "union of", "el paso", "the institution", "the constitution", "the aclu", "their spouses"
Corporations	"of commerce", "bain capital", "filing for", "community banks", "timber company", "on corporations", "which move", "subsidy for", "free markets", "auto industry"
Crime	"three strikes", "justice system", "the ranger", "local law", "law enforcement", "second chance", "the byrd", "criminal justice", "dna testing", "all capital"
Drugs	"in colombia", "illegal drugs", "of drug", "on drugs", "for drug", "drug testing", "the combat", "disparity between", "of drugs", "drug treatment"
Education	"private school", "pell grants", "public schools", "teachers and", "math and", "schools to", "and math", "schools that", "education reform", "in reading"
Energy & Oil	"global warming", "nuclear power", "climate change", "greenhouse gas", "clean energy", "the arctic", "energy independence", "gas emissions", "dependence on", "the kyoto"

Go ▸ back to figure

Table continued

Topic	Top ten bigrams
Environment	“clean air”, “in mercury”, “great lakes”, “for clunkers”, “air act”, “environmental health”, “environmental protection”, “mercury emissions”, “the clean”, “air and”
Families & Children	“child welfare”, “entertainment media”, “children from”, “foster care”, “sexually transmitted”, “entertainment products”, “conference on”, “video games”, “for adoption”, “flexible work”
Foreign Policy	“nuclear weapons”, “the nuclear”, “government of”, “with russia”, “georgia and”, “a nuclear”, “of nuclear”, “free markets”, “and ukraine”, “the taiwan”
Free Trade	“trade agreement”, “the wto”, “trade barriers”, “of cape”, “trade with”, “duties on”, “open markets”, “in jordan”, “fast track”, “on trade”
Government Reform	“general elections”, “the lineitem”, “voter registration”, “of dc”, “the polls”, “from federal”, “for representation”, “on rules”, “suppress the”, “representation in”
Gun Control	“the nra”, “gun control”, “second amendment”, “the gun”, “gun laws”, “waiting period”, “guns in”, “checked baggage”, “of gun”, “day waiting”
Health Care	“part d”, “prescription drug”, “medicare part”, “generic drugs”, “care plan”, “drugs from”, “have health”, “community health”, “their health”, “childrens health”
Homeland Security	“nuclear weapons”, “missile defense”, “the patriot”, “the intelligence”, “our troops”, “in afghanistan”, “of military”, “on terror”, “of war”, “armed forces”

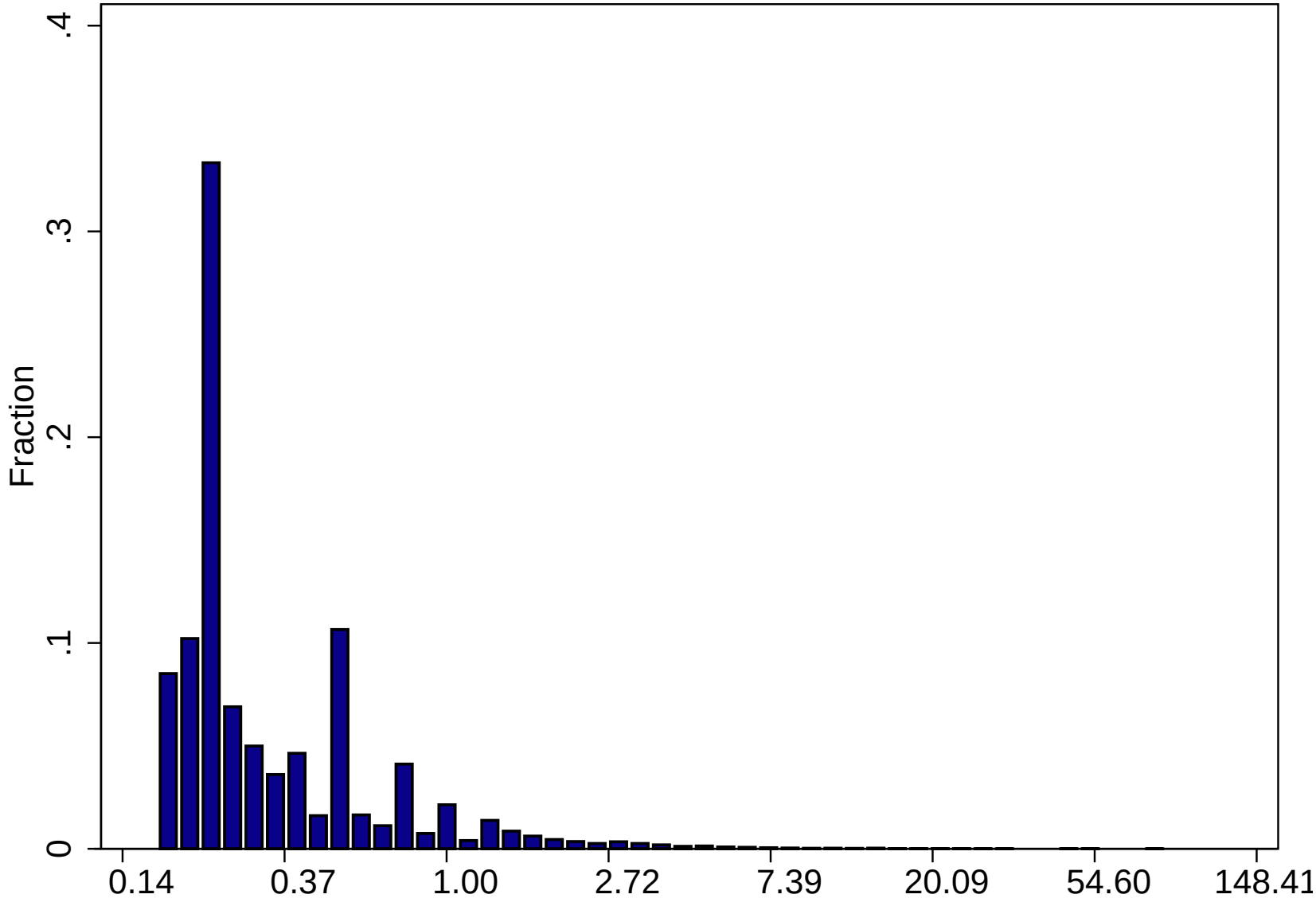
Go back to figure

Table continued

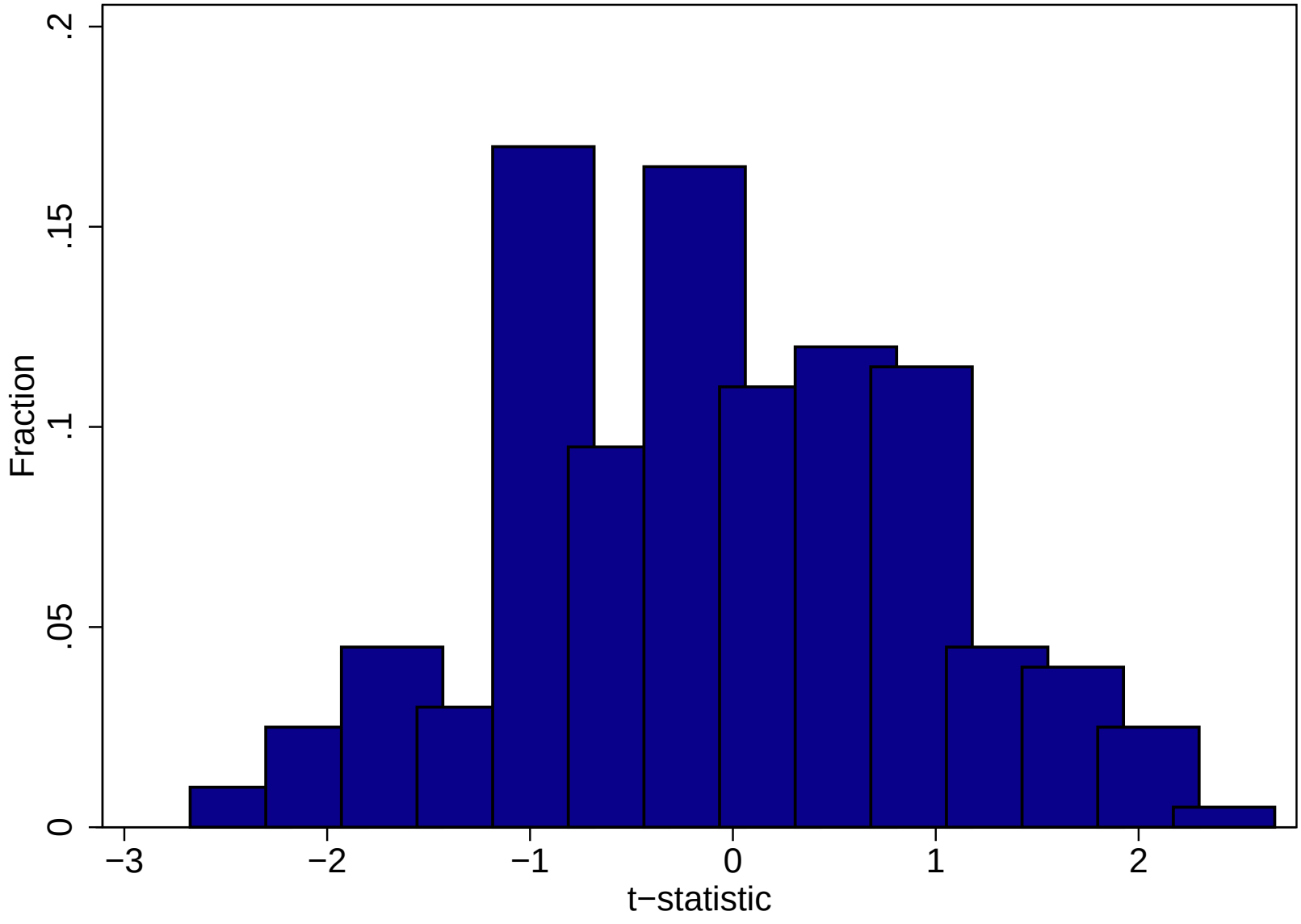
Topic	Top ten bigrams
Immigration	“illegal immigrants”, “illegal immigration”, “the border”, “illegal aliens”, “temporary worker”, “operational control”, “the borders”, “the shadows”, “the immigration”, “secure our”
Jobs	“pay raises”, “overtime pay”, “air traffic”, “job growth”, “wage to”, “unemployment benefits”, “million jobs”, “the faa”, “higher when”, “jobs lost”
Principles & Values	“of hawaii”, “third way”, “john f”, “on principles”, “run for”, “justice of”, “democratic leadership”, “leadership council”, “of church”, “of hope”
Social Security	“younger workers”, “private accounts”, “retirement age”, “of social”, “their retirement”, “personal retirement”, “trust fund”, “interest saved”, “security system”, “their social”
Tax Reform	“estate tax”, “the estate”, “the amt”, “tax cuts”, “bush tax”, “tax relief”, “alternative minimum”, “tax cut”, “minimum tax”, “tax plan”
Technology	“the fcc”, “on internet”, “space program”, “fairness doctrine”, “internet a”, “top markets”, “privacy is”, “internet is”, “on technology”, “internet to”
War & Peace	“our troops”, “nuclear weapons”, “from iraq”, “to war”, “in afghanistan”, “of iraq”, “a nuclear”, “osama bin”, “the surge”, “mass destruction”
Welfare & Poverty	“home ownership”, “block grants”, “the proportion”, “reducing by”, “on less”, “extreme global”, “service by”, “of extreme”, “drug treatment”, “south side”

Go back to figure

Distribution of bigram scores



t-statistics from placebo regressions



Go back to risk validation table

The contribution of the different components of PRisk_{it}

QUARTER DATA	PRisk_t	Unweighted PRisk_t	Unrestricted PRisk_t	Textbook-based PRisk_t	BBD news-based$_t$
$\text{PRisk}_{i,t}$	1.000	0.957	0.841	0.997	0.833
Unweighted PRisk_t	0.957	1.000	0.844	0.939	0.788
Unrestricted PRisk_t	0.841	0.844	1.000	0.835	0.626
Textbook-based PRisk_t	0.997	0.939	0.835	1.000	0.836
BBD news-based$_t$	0.833	0.788	0.626	0.836	1.000

Frequency of all synonyms

Synonym	Frequency
risk	155645
risks	45650
uncertainty	33278
variable	30566
chance	25354
pending	23947
possibility	22695
uncertainties	21623
uncertain	16883
doubt	13983
bet	10708
likelihood	8403
variability	8152
exposed	6931
threat	6797
probability	6760
varying	3995
unpredictable	3872
unclear	3766
speculative	3707
fear	3516
gamble	3137
hesitant	2849
reservation	2393
hazard	1937
risky	1883
tentative	1881
doubtful	1867

Synonym	Frequency
dangerous	1692
instability	1381
sticky	1371
tricky	1368
hazardous	1318
queries	1020
danger	1002
vague	987
fluctuating	971
unstable	841
query	791
erratic	782
unsettled	754
dilemma	729
jeopardize	722
unpredictability	685
hesitancy	663
jeopardy	565
unsure	509
unresolved	462
suspicion	452
riskier	443
irregular	374
risking	305
chancy	279
peril	266
unreliable	265
halting	224

Synonym	Frequency
hesitating	216
risked	205
unsafe	193
wager	171
debatable	170
dicey	169
undecided	161
undetermined	160
precarious	153
apprehension	137
indecision	136
wavering	128
faltering	114
iffy	111
quandary	87
hazy	84
treacherous	76
changeable	74
hairy	68
insecurity	61
perilous	55
riskiest	55
dubious	51
wariness	43
oscillating	41
unreliability	39
riskiness	38
insecure	37

Synonym	Frequency
tentativeness	36
qualm	30
vagueness	26
equivocation	26
menace	20
scepticism	19
indecisive	17
vacillating	13
imperil	13
dodgy	12
gnarly	12
disquiet	9
vacillation	9
equivocating	9
incalculable	8
unconfident	7
ambivalence	6
parlous	6
diffident	5
untrustworthy	5
changeability	4
misgiving	4
undependable	3
fickleness	3
fitful	2
doubtfulness	1
fluctuant	1

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

Managing $\text{PRisk}_{i,t}$

	Log(1+$ donations)$_{i,t}$		# of recipients$_{i,t}$		Hedge$_{i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{PRisk}_{i,t}$ (standardized)	0.429***	0.050*	5.139***	0.326	0.026***	0.007*
	(0.082)	(0.029)	(1.475)	(0.381)	(0.005)	(0.004)
Time FE	yes	yes	yes	yes	yes	yes
Firm FE	no	yes	no	yes	no	yes
SIC2 FE	yes	implied	yes	implied	yes	implied
SIC2*time FE	no	no	no	no	no	no
N	23,839	23,839	23,839	23,839	23,839	23,839