

Appendix:
Supplementary Tables for
“Legislating Stock Prices”

In this Appendix we describe in more detail the method and data cut-offs we use to: i.) classify bills into industries (as in Cohen and Malloy (2011)), and ii.) assign bills as positive or negative for the given industries to which it relates.

A.1. Industry classification, keywords, and cut-offs

As described in the data section, we first download the full text of all bills jointly from the Government Printing Office (GPO) and Congress's Thomas database. We then parse each bill's entire text, and use a list of matching words to classify each bill into the industries to which it applies. Table A1 displays the words we use to classify into the Fama-French 49 industries, for three sample industries. We are happy to provide the entire list upon request, for all 49 industries (but including them all in the appendix table made this a 13 page table). Again, the Fama-French 49 industries are somewhat analogous to the SIC 2 digit industry classification, with some improvements and aggregations of similar SIC 2 sub-industry components. As Table A1 shows, we obviously attempt to use a number of keywords to capture the bill's relevance to a given industry. However, we balance this by not choosing too many keywords to induce false positives. In the table, we include when a given industry (or keyword) was removed because it was capturing too many false positives in the industry assignment process.

To give a few examples, we remove the word “soda” from the “Candy and Soda” industry, as it kept matching with “soda ash” and “soda mountain” from a number of bills, both having nothing to do with the desired industry. As another example, for the “Personal Services Industry,” we initially included the keyword “beauty shop.” Unfortunately, nearly all of the instances of this keyword in bills refer to the “House Beauty Shop,” referencing a (debate about) and the eventual closing of this service in one of the House of Representative buildings, and so we remove this keyword as well.

Another important aspect of this table is that after deciding upon keyword roots, we then go through each extension and conjugation that we see in the bills in order to determine which extensions and conjugations reasonably refer to the given industry. So, for instance, for the “Utilities” industry, we use the keyword root “utilit-.” While this matches correctly “utility” and “utilities,” it incorrectly picks up “utilize” and “utilitarian,” which also appear in bills. We thus remove all of the final two matches from the bill matched sample to Utilities through “utilit-.” We do this for every keyword root in every industry to ensure that the given keyword root matches to the intended industry.

The last element of the process is then choosing threshold frequencies for each keyword appearing in a given bill relative to that keyword’s use across all bills, in order to classify a given bill as referring to that keyword’s industry. We use two potential methods for this, the first is the absolute count of the keyword, and the second is the ratio of that word to the entire number of words in the bill. For instance, the word “electricity” has a frequency cut-off of 11 times, representing the 95th percentile of that keyword’s distribution amongst bills. We have used cut-offs for both measures ranging from the 75th-95th percentile, and the results in the paper are unaffected. All results

reported in the paper are for the middle of this range, 85th percentile, using the absolute number of keyword appearances.

The outcome of this process is a match of relevant industries to each bill considered in congress. We believe we have a quite conservative match process, but match fairly definitively 20% of all bills to a relevant industry (or industries).

A.2 Bill signing procedure

In order to “sign” each bill as either positive or negative for the assigned industries, we examine the voting record of the senators who have an interest in each of our assigned industries. We establish this by summing up the constituent firms located in each senator’s state (we have used sales, market equity, number of employees, and number of firms, and they are highly correlated and yield nearly identical results in terms of magnitude and significance). Then, for each state, we rank all industries that reside in that state and define “important” industries for that state as those that rank in the top 3 for that year. We assign these for each state in each congress, so again displaying the entire table would be quite large. However, in Table A2 we include a subset of state–industry and congress classifications (again, we are happy to provide the entire table upon request, but including them all made this table over 17 pages). To give an example from the Table A2, in the state of New York during the 110th Congress (2007–2008), the most important industries in the state were Banks, Insurance, and Sales & Trading.

Once the important industries for each state are established, we then map these to the voting records of the senators in each state. We then classify each bill that mentions the given industry as positive or negative for the mentioned industry using the interested senators’ votes. For instance, consider bill S.3044 from the 110th Congress

shown in Figures A1 and A2. Figure A1 indicates that this particular bill that was assigned only to the Fama-French industry #30: Petroleum and Natural Gas, based on the relative frequency of pre-specified keywords in the bill that pertain to this industry. Figure A1 displays the summary text at the top of the bill, which indicates that the bill clearly pertains to the oil and gas industry. Figure 1 then displays the executable program we created to implement our signing procedure for the same bill depicted in Figure A1. The summary text indicates that the goal of this bill was "to provide energy price relief and hold oil companies and other entities accountable for their actions with regard to high energy prices, and for other purposes," so the bill was likely to be perceived as negative for the oil and gas industry. The Petroleum and Natural Gas Industry qualified as an important industry in 8 states (including TX and LA), so the total number of "interested" votes in the bill was 16. Not surprisingly, even though this vote lined up largely along party lines, none of the 6 Republican senators who voted in favor of the bill were senators who were "tied" to this industry via constituent interests in their home state (all 8 interested Republicans voted against), and 1 of the 2 Democrats who voted against the bill was Mary Landrieu of Louisiana, a state heavily represented by oil and gas interests (the other Democrat who voted against was Henry Reid from Nevada, a consistent supporter of oil and gas companies); the 6 interested Democrats who voted in favor of the bill did so largely on party and ideological grounds (variables that we control for in our tests).

Specifically, we "sign" each bill's expected impact on a given industry by comparing the votes of "interested" senators on that bill with the votes of "uninterested" senators on that bill. Again, interested senators on a given bill are those where an industry affected by the bill is a "Top 3" industry in that senator's home state (where industries are ranked within each state by total aggregate firm sales, or total market

capitalization). We then compute an Economic Interest signing measure as follows: We compute the ratio of positive votes of all interested senators by dividing their total number of “yes” votes on a bill by their total number of votes, and compare this to the ratio of positive votes of all uninterested senators; if the ratio of positive votes by interested senators is greater than that for uninterested senators, we call this a “positive” bill for the industry in question, and if the ratio of positive votes for interested senators is less than that for uninterested senators, we call this a “negative” bill for the industry. Our results are very similar regardless of whether we use this ratio difference (“R-R” in Figure 1) measure, or alternative signing measures such as the absolute ratio (“Ratio” in Figure 1, i.e., the percentage of interested senators who vote for the bill), or the relative ratio (“R/R” in Figure 1, i.e., the percentage of interested senators who vote for the bill divided by the percentage of all senators who vote for the bill). and the ratio difference (“R-R” in Figure 1, i.e., the percentage of interested senators who vote for the bill minus the percentage of all senators who vote for the bill); our results are not sensitive to the particular signing measure we employ. We have also tried *within-party* signing measures that are computed identically to those above, except aggregated within each party (since many votes are along party lines) and again the results are very similar.

110th Congress Senate Bill 3044 pcs

Settings Other Windows

Congress: 110 Full Text: 110\getdoc.dbname=110_cong_bills\ocid=f_s3044pcs.txt Word Count: 6437 Search

Show: Bills with sign measures

Industry: 30 : Petroleum and Natural

Types of

- h House Bill
- hc House Concurrent Resolution
- hj House Joint Resolution
- hr House Simple Resolution
- s Senate Bill**
- sc Senate Concurrent Resolution
- sj Senate Joint Resolution
- sr Senate Simple Resolution

Bill	Qualifier	Decision
3036	pcs	
3044	pcs	
3268	pcs	

Calendar No. 743

110th CONGRESS
2d Session

S. 3044

To provide energy price relief and hold oil companies and other entities accountable for their actions with regard to high energy prices, and for other purposes.

IN THE SENATE OF THE UNITED STATES

May 20, 2008

Mr. Reid (for himself, Mrs. Boxer, Mr. Brown, Mr. Cardin, Mr. Conrad, Mr. Dodd, Mr. Durbin, Mr. Johnson, Mr. Kennedy, Ms. Klobuchar, Mr. Kohl, Mr. Lautenberg, Mr. Leahy, Mr. Levin, Mrs. McCaskill, Ms. Mikulski, Mrs. Murray, Mr. Reed, Mr. Schumer, Ms. Stabenow, and Mr. Whitehouse) introduced the following bill; which was read the first time

May 21, 2008

Keyword: States & Vote data

Industry: 30 : Petroleum and Natural

Keyword: oil and gas

Ratio	Count	Bill
0.0001...	45	104h2491pp
0.0036...	41	107h2436ih
0.0032...	41	107h2436rh
0.0058...	38	110s2991pcs
0.0059...	38	110s3044pcs
0.0145...	38	105s1920is
0.0061...	38	110h6653ih
0.0013...	37	110s2642is
0.0005...	37	110h11330h

Keyword Distribution

Related Industries & Keywords List

Voting statistics & Sign Measures

Text Search: cigar Find Next

Related industries

Show Selected Industry Only Activate Keyword Analysis

Industry	Abs Measure	Rel Measure	Rel(with avg)	Keyword	Count	FirstOccur	FF49	FF49 Description
30:Petroleum and Natural G...	1	1	1	oil and gas	38	215	30	Petroleum and Natural Gas
				petroleum	35	334	30	Petroleum and Natural Gas
				crude oil	27	385	30	Petroleum and Natural Gas
				energy ind(?!(irect icator ian))	5	274	30	Petroleum and Natural Gas
				natural gas	5	2876	30	Petroleum and Natural Gas
				wholesale	5	3429	42	Wholesale
				retail	3	3427	43	Retail
				military	1	720	26	Defense
				tobacco	1	2278	5	Tobacco Products

Fig. A1.
Congressional bill industry assignment example

Table A1**Industry Assignment Keywords and Cut-offs**

This table shows the keywords used in assigning the full text of each bill in our sample to the resultant industries covered by the bill, along with the cut-offs for the percentile in the distribution of that keyword for the entire sample. We assign the given industry to a bill if any one of its keywords is above the 85th percentile cut-off given in the table. We choose a subset of the 49 industries (Fama-French Industry Classification) that we use, as the table would otherwise be prohibitively long. We are happy to provide the entire table of keywords and cut-offs upon request.

Fama-French Industry # / Industry Name	Keyword	Count Greater Than / Equal To	Count Percentile
1 - Agriculture	agricultur-	12	85
	animal feed	7	85
	corn	4	85
	crop(s)	14	85
	farm(s) (land)	11	85
	fishing	8	85
	livestock	7	85
	wheat	8	85
26 - Defense	air force	31	85
	Ammunition	15	85
	armed force(s)	10	85
	army	13	85
	gun(s) (runners) (powder)	8	85
	marine corps	30	85
	military	11	85
	missile(s)	23	85
	national guard	30	85
	navy	19	85
	ordnance	7	85
	space vehicle(s)	3	85
	tanks	9	85
	weapon(s)	15	85
	broker dealer(s)	3	85
closed end	2	85	
commodity broker(s)	14	85	
financial services firm(s)	2	85	
investment bank(s)	8	85	
investment firm(s)	2	85	

48 - Trading

investment management	6	85
investment trust(s)	12	85
mutual fund(s)	3	85
reit(s)	44	85
broker-dealer(s)	No Keyword Count Information Available	
closed-end	No Keyword Count Information Available	
security broker(s)	Keyword removed : Only 2 bills with the keyword, and all appear in definition clauses	
unit trust(s)	No Keyword Count Information Available	

Table A2.
Industry Assignments by State

This table shows the 3 most important industries for each state at the beginning, midpoint, and endpoint of our sample. “Importance” is measured by summing up the market equity of all publicly traded firms in each industry residing in a state, and then ranking industries. We thus show below the three largest industries operating in each given state over each Congress. We choose a subset of states and Congresses, as the table would otherwise be prohibitively long. We are happy to provide the entire table of states, industries operating in those states, and most important industries for each state and Congress upon request.

State	Fama-French Industry #	Industry Name	Congress
TX	30	Oil	101
TX	31	Utilities	101
TX	32	Telecom	101
TX	30	Oil	105
TX	32	Telecom	105
TX	35	Computers	105
TX	30	Oil	110
TX	31	Utilities	110
TX	32	Telecom	110
NY	45	Banks	101
NY	46	Insurance	101
NY	48	Trading	101
NY	45	Banks	105
NY	46	Insurance	105
NY	48	Trading	105
NY	45	Banks	110
NY	46	Insurance	110
NY	48	Trading	110
CA	32	Telecom	101
CA	35	Computers	101
CA	43	Retail	101
CA	35	Computers	105
CA	36	Software	105
CA	37	Electronic Equipment	105
CA	35	Computers	110
CA	36	Software	110
CA	37	Electronic Equipment	110

Table A3.

Other influences: personal portfolios

This table reports calendar-time portfolio tests as in Table 2. The Long-Short portfolio tests are computed exactly as in Table 2 except that the Economic Interest signing measure described in Table 2 is refined here as follows. Rather than looking only at the votes of all interested senators, we focus here on the subset of votes cast by senators that *also* have a personal stockholding in the affected industry. We obtain this data on personal stockholdings from OpenSecrets.org, for the period 1997 to 2008. In Panel A we first replicate our main result from Table 2 over this exact sample period. Then in Panel B we redefine our signing measure using only the votes of this subset of senators who *also* have a personal stockholding in the affected industry. This table reports the average monthly “Long-Short” portfolio return for a portfolio that buys the “Long” portfolio and sells the “Short” portfolio each month. The CAPM alpha is a risk-adjusted return equal to the intercept from a time-series regression of the Long-Short portfolio on the excess return on the value-weight market index (see Fama and French, 1996). The three-factor alpha is a risk-adjusted return equal to the intercept from a time-series regression of the Long-Short portfolio on the excess return on the value-weight market index, the return on the size (SMB) factor, and the return on the value (HML) factor (see Fama and French, 1996). The four-factor alpha is a risk-adjusted return equal to the intercept from a time-series regression of the Long-Short portfolio on the excess return on the value-weight market index, the return on the size (SMB) factor, the return on the value (HML) factor, and the return on a prior-year return momentum (MOM) factor (see Carhart, 1997). *t*-statistics are shown below the estimates, and 1%, 5%, and 10% statistical significance are indicated with ***, **, and *, respectively.

Panel A: Using personal stockholdings in addition to state-level industry presence to determine interested senators			
	Long Month <i>t</i> + 1 Portfolio Return	Short Month <i>t</i> + 1 Portfolio Return	(Long-Short) Month <i>t</i> + 1 Portfolio Return
Interest-based signing approach over personal stockholdings data sample period (1997–2008)			
Raw returns	0.27 (0.54)	-0.69 (1.20)	0.96** (2.16)
CAPM alpha	0.05 (0.21)	-0.91** (2.14)	0.96** (2.17)
Three-factor alpha	-0.02 (0.10)	-0.97** (2.53)	0.95** (2.25)
Four-factor alpha	0.10 (0.43)	-0.90** (2.32)	1.00** (2.35)
Panel B: Interest-based signing approach for senators who <u>also</u> have personal stockholdings in target industry			
Raw returns	-0.05 (0.09)	-0.96* (1.71)	0.91* (1.76)

CAPM alpha	-0.18 (0.59)	-1.11*** (3.01)	0.93* (1.80)
Three-factor alpha	-0.13 (0.41)	-1.02*** (2.87)	0.89* (1.70)
Four-factor alpha	0.38 (1.41)	-1.19*** (3.25)	1.58*** (3.26)
