

Divided Government and the Stock Market

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1 Introduction

2 Empirical Results

3 Mechanism

4 Conclusion

Motivation & Research Question

- Financial market $\leftrightarrow$ Business Cycle $\leftrightarrow$ Politics
 - Variations in stock returns are associated with business cycles
Campbell, 1991
 - Business cycle is related to political variables
Azzimonti and Talbert, 2014
 - Which political variables? Presidents' political affiliation, midterm election, degree of democracy, political beliefs of economic agents . . .
 - We focus on **(the status of) governments**
- **Research Question:** Does **the status of governments** affects stock market outcome?

Literature Review & Contribution

- Related literature:
 - Presidential cycle of stock returns
Santa-Clara and Valkanov, 2003, Pastor and Veronesi, 2020
 - Presidential cycle of economic growth
Blinder and Watson, 2016
 - Midterm election cycle
Chan and Marsh, 2021
- Contribution: the “government cycle” established here ...
 - ... is not a bi-partisan argument (any political party can preside over a united government or a divided government)
 - ... reveals numerous new empirical findings that go beyond the scope of existing political cycles

The Government

- **Definition:** A U.S. government is
 - *United* when $\{\text{President, Senate, House}\} = \{\text{R, R, R}\}$ or $\{\text{D, D, D}\}$;
 - *Divided* otherwise (e.g., $\{\text{R, D, D}\}$, $\{\text{D, R, R}\}$)
- **Example:** The current president Joe Biden and the anticipated transition to Donald Trump
 - 117th Congress (2021 - 2022): United $\{\text{D, D, D}\}$
 - 118th Congress (2023 - 2024): Divided $\{\text{D, D, R}\}$
 - 119th Congress (2025 - 2026): United $\{\text{R, R, R}\}$
- **Fairly balanced:** In our main CRSP sample (1927 - 2020), United (49.3%), Divided (50.7%) $\rightarrow$ well-balanced
 - But more Divided than United in the later period

Preview of main findings

- There exists a government cycle in stock market performance
- The government cycle differs from the presidential cycle and reveals numerous new empirical insights
- Consistent with our proposed mechanism of political gridlock, the government cycle has a more pronounced effect on small firms and explains the recent disappearance of the firm size effect
- Our work reconciles the opposing view from the Wall Street that “Gridlock is good.” (not in this presentation due to time constraint)

▶▶ Decomposition

① Introduction

② Empirical Results

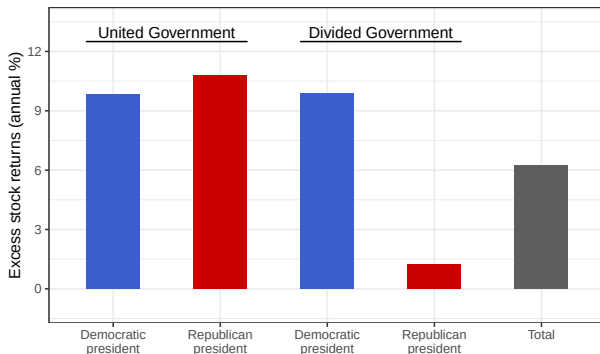
③ Mechanism

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The Government Cycle

- In our main sample (1927 - 2020), we find that
 - Excess VWR (VWR_TBL): **8.7%**** per annum gap
United (10.3%) vs. Divided (1.6%) governments
 - Excess EWR (EWR_TBL): **16.8%***** per annum gap
United (16.8%) vs. Divided (0.0%) governments
 - quick robustness checks:
 - stock market volatility
 - excluding extreme returns
 - using inflation rate instead of t-bill
- ▶▶ Full table
- As we will demonstrate later, the significant discrepancy in the EWR highlights the substantial impact of this government cycle on small firms
 - Economic growth also depends on the government cycle

President-Government two-way sorts



Post-war (1947 - 2020) excess VWR

- Government cycle $\neq$ Presidential cycle
- United-Republican times are comparable (or slightly better) than Democratic presidents from any governments
- Divided-Republican times are strikingly bad (almost all NBER recessions occur under this regime)

Government Cycle is more important than Presidential Cycle

Panel A: Dependent variable is VWR_TBL (%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>GOV</i>	1.120** (2.47)			1.145** (2.54)		0.886** (2.06)	0.918** (2.14)
<i>PRESID</i>		0.898** (2.29)			0.892** (2.25)	0.543 (1.55)	0.523 (1.46)
<i>Election_{mid}</i>			1.280*** (3.18)	1.334*** (3.32)	1.264*** (3.08)		1.313*** (3.24)
<i>Election_{pres}</i>			0.333 (0.67)	0.272 (0.55)	0.367 (0.74)		0.304 (0.61)
Observations	1128	1128	1128	1128	1128	1128	1128
Constant?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\mathbf{X}_t^{\text{macro}}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2 (%)	2.5	2.3	2.1	3.0	2.6	2.7	3.0

Stock return predictive regression (data: 1927 - 2020 monthly): $r_{t+1}^e = \alpha + \beta' \mathbf{X}_t^{\text{political}} + \gamma' \mathbf{X}_t^{\text{macro}} + \varepsilon_t$

- Government dummy survives financial variables known to explain the stock market (such as d/p ratio and default yield; column 1)
- Moreover, it subsumes the presidential dummy (column 6 and 7)

Robustness Checks

- While the change in the status of governments happens at most 46 times during our sample of 94 years of CRSP era (1927 - 2020) ...
- ... we show that our main results remain robust under following specifications:
 - (1) Pre-CRSP sample (1871 - 1926) [▶▶ results](#)
 - Presidential cycle works in the opposite way during the earlier periods
 - (2) Placebo test (Senate cycle alone or House cycle alone) [▶▶ results](#)
 - (3) Randomized Bootstrapping tests [▶▶ results](#)
 - (4) U.S. State level evidence [▶▶ results](#)
 - (5) International level evidence: United Kingdom (1922 - 2022) has 'hung parliament' vs. 'non-hung parliament' [▶▶ results](#)

The status of governments *affects* future stock market outcomes

Panel A. Close-tie election is defined as vote margins less than 3% (9 elections)

Governments	Barely Unified	Barely Divided	Gap
VWR-TBL (per annum %)	14.10 (2.84)	-8.05 (-0.93)	22.15** (2.32)
EWB-TBL (per annum %)	22.26 (2.92)	-5.61 (-0.54)	27.87** (2.29)

Stock market difference between “barely unified” and “barely divided” governments after close-tie elections

- After close-tie elections (voting margin $< 3\%$ or 5%), the resulting governments can be regarded as *randomly* assigned as voters are evenly split in their decisions (quasi-natural experiment)
- Reverse causality? No; Selection bias? No [▶ More on this](#)
- See also Sojli and Tham (2015)

Economic growth: 1900 - 2020

Presidents Governments	Democratic presidents	Republican presidents	Average growth
United	5.40% (4.00) (40 years)	3.31% (1.77) (29 years)	4.51% (4.18) (69 years)
Divided	2.22% (2.68) (16 years)	1.91% (2.61) (36 years)	2.01% (3.57) (52 years)
Average growth	4.49% (4.42) (56 years)	2.54% (2.89) (65 years)	121 years

Average annual growth in percentage term, numbers in parentheses are Newey-West adjusted t-statistics (6 lags)

- Sample is fairly balanced:
 - Dem (56 years) + Rep (66) = 122 years
 - Uni (70) + Div (52) = 122 years
 - Uni-Dem (40) + Uni-Rep (30) + Div-Dem (16) + Div-Rep (36) = 122 years
- Government gap (2.5%) > Presidential gap (2.0%)

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Economic Mechanism: Political Gridlock

- United governments = Less (or No) gridlock
- Divided governments = Severe gridlock
- In other words, **Goldilocks** vs. **Gridlock** economy
- Consistent with this intuition, we observe that during Divided governments, ...
 - Economic Policy Uncertainty (EPU) ↑; Partisan Conflict Index (PCI) ↑
 - Treasury premium exists across the government cycle (but not across the presidential cycle)
 - Congressional bills are vetoed more often
 - Firm's concern on the economy grows (earnings calls transcripts)

Hassan et al., 2019

» EPU

» PCI

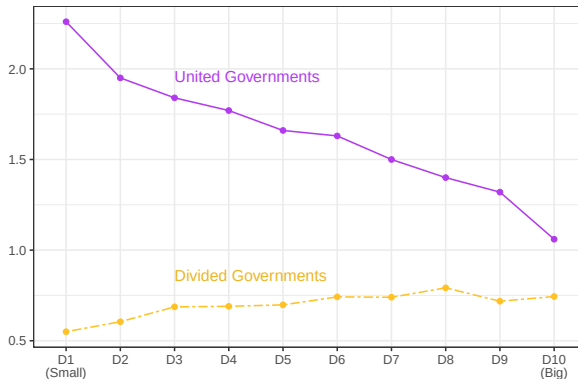
» Treasury Premium

» Bills

» Earnings Calls

- Which firms are affected more due to political gridlock?
 - ✓ **Small firms:** limited capacity to cope with the political conflict
Faccio, 2006
 - **Big firms:** more cash reserves, can strategically donate to politicians
Gertler and Gilchrist, 1994

A tale of two governments



Decile Portfolio returns formed on firm size (data: 1927 - 2020 monthly)

- SMB thrives under United (no gridlock) but crashes under Divided governments (gridlock)
- The government cycle explains the disappearance of SMB post-1980s

►► Post-1980s results

Fama-MacBeth regression

	Full sample (1927:01 - 2020:12)			Post-1980s (1983:01 - 2020:12)		
	(1)	(2)	(3)	(4)	(5)	(6)
	All samples	United only	Divided only	All samples	United only	Divided only
log (ME)	-0.13*** (-3.70)	-0.23*** (-4.42)	-0.03 (-0.71)	-0.09* (-1.91)	-0.20*** (-2.84)	-0.05 (-0.81)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
B/M included?	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	2,474,568	876,294	1,598,274	1,604,919	408,711	1,196,208

Dependent var: firm returns, Independent var: firm size and B/M

- A reliable negative relation between firm size and stock returns is established only when the United government is in place, even in post-1983 samples when SMB was reported to disappear (Hou and van Dijk, 2019)
- During United governments, you don't need QMJ to resurrect SMB (Asness et al., 2019) [▶▶ QMJ results](#)

Some stylized facts on the government cycle

- What makes a change of government status, from United to Divided or Divided to United?
- **Stylized fact 1 (United to Divided).** It's not easy to retain the control of Congress
- **Stylized fact 2. (Divided to United).** You (re-)gain control of Congress only through presidential election
- **Stylized fact 3. (Exceptions).** Exceptions come from exogenous shocks
 - Exception 1: Harry S. Truman (D) – Became President after FDR's death (i.e., without election), lost Congress (79th United → 80th Divided), but regained it two years later (81st United)
 - Exception 2: George W. Bush (R) – “Rally around the flag” effect post-9/11; 107th (Divided) → 108th (United) Congress.

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Concluding remarks

- This paper contributes to the literature on Political Economy and Asset Pricing
 - PE: a new political cycle (not bi-partisan)
 - AP: SMB and factors zoo (follow-up project)
- Future work: Executive Branch - Legislative Branch - Judicial Branch
- The full paper & this presentation slide is available at sites.google.com/view/deanryu
- Thank you!

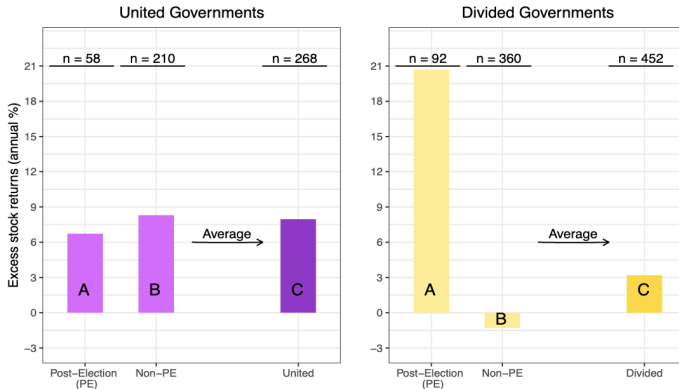
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Panel B: Sample: 1961 – 2020



- The initial months of a divided government is beneficial to the stock market (industry thus believes that gridlock is good)
- But in general, the remaining months (80% of the divided government sample) show poor performance (the focus of this paper)

Appendix: Stock market results

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Panel A: Full sample (1927:01 - 2020:12)

		(1)	(2)	(3)	(4)
		VWR-TBL	VWR-INF	EWV-TBL	EWV-INF
Governments	United	10.30	9.90	16.78	16.39
	(<i>N</i> = 556)	(3.66)	(3.49)	(4.07)	(3.99)
	Divided	1.60	3.37	-0.00	1.76
	(<i>N</i> = 572)	(0.56)	(1.19)	(-0.01)	(0.49)
	Difference	8.7** (2.08)	6.53* (1.61)	16.78*** (3.07)	14.62*** (2.79)
Presidents	Democrat	10.72	9.71	15.70	14.69
	(<i>N</i> = 574)	(4.22)	(3.74)	(4.11)	(3.83)
	Republican	0.88	3.36	0.57	3.06
	(<i>N</i> = 554)	(0.28)	(1.11)	(0.15)	(0.79)
	Difference	9.85** (2.20)	6.35 (1.48)	15.13*** (2.59)	11.63** (2.08)

Panel B: Post-World War II (1947:01 - 2020:12)

		(1)	(2)	(3)	(4)
		VWR-TBL	VWR-INF	EWV-TBL	EWV-INF
Governments	United	10.11	10.25	16.84	16.98
	(<i>N</i> = 340)	(4.20)	(4.27)	(5.16)	(5.26)
	Divided	3.87	5.23	2.00	3.36
	(<i>N</i> = 548)	(1.54)	(2.07)	(0.61)	(1.02)
	Difference	6.23* (1.76)	5.02 (1.42)	14.84*** (3.16)	13.62*** (2.89)
Presidents	Democrat	9.84	9.87	12.92	12.95
	(<i>N</i> = 408)	(4.61)	(4.61)	(4.36)	(4.42)
	Republican	3.21	4.84	3.23	4.86
	(<i>N</i> = 480)	(1.16)	(1.73)	(0.88)	(1.31)
	Difference	6.63* (1.92)	5.03 (1.43)	9.69** (2.00)	8.09* (1.69)

Appendix: Pre-CRSP sample

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Panel A: Pre-CRSP (1871:03 - 1926:12)

Governments	United ($N = 406$)	Divided ($N = 204$)	Difference
	-1.09 (-0.40)	-3.55 (-1.18)	2.4 (0.58)
Presidents	Democrats ($N = 192$)	Republicans ($N = 478$)	Difference
	-5.92* (-1.71)	-0.51 (-0.20)	-5.4 (-1.30)

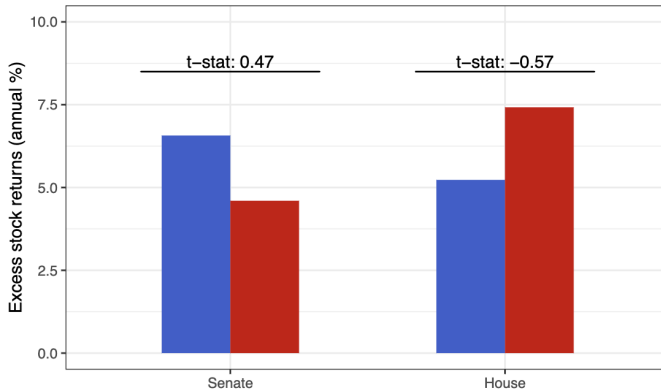
Panel B: Entire periods (1871:03 - 2020:12)

Governments	United ($N = 962$)	Divided ($N = 836$)	Difference
	5.49*** (2.63)	-0.03 (-0.01)	5.52* (1.71)
Presidents	Democrats ($N = 766$)	Republicans ($N = 1032$)	Difference
	6.55*** (3.01)	0.24 (0.11)	6.36* (1.93)

Panel C: Entire periods (1871:03 - 2020:12) without post-election premium

Governments	United ($N = 763$)	Divided ($N = 664$)	Difference
	4.93** (2.28)	-2.34 (-0.92)	7.32** (2.18)
Presidents	Democrats ($N = 608$)	Republicans ($N = 819$)	Difference
	5.55** (2.46)	-1.43 (-0.62)	6.96** (2.07)

Appendix: Placebo test

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Appendix: Randomized Bootstrapping tests

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- The bootstrapping test is done in the following way:
 - (1) First, we produce 10,000 time series of r_{t+1}^e where each time-series is drawn randomly from the 94 years of monthly stock returns ($T = 1128$) with replacement. r_{t+1}^e is the value-weighted excess stock returns (VWR.TBL) or equal-weighted excess stock returns (EWR.TBL).
 - (2) Next, we independently and randomly select the government dummy $\mathbf{GOV}_t$, ensuring that the government structure remains consistent for two years. In other words, regardless of the randomly chosen government status, it will last for a duration of 24 months. We then do a coin toss to determine the next government, which also would last for 24 months.
 - (3) For each of $j = 1, 2, \dots, 10000$ simulation, we run a predictive regression $\{r_{t+1}^e = \alpha + \beta \mathbf{GOV}_t + \varepsilon_{t+1}\}_j$ and obtain t_j , t-statistics for $\hat{\beta}$ using standard errors adjusted for heteroskedasticity.
 - (4) Letting t_0 the t-statistics obtained using the original U.S. sample of 94 years (we find that $t_0 = 2.42$ when r_{t+1}^e is VWR.TBL, and $t_0 = 3.29$ when r_{t+1}^e is EWR.TBL), compute the bootstrapped p-value for the coefficient $\hat{\beta}$ as sum of the number of t_j s that are greater than or equal to t_0 and the number of t_j s that are less than or equal to t_0 , divided by the number of simulation.
- As a result, the bootstrapped p-values that we obtain are **0.016** when the dependent variable r_{t+1}^e is VWR.TBL (**0.001** when EWR.TBL)

Appendix: U.S. State level panel regression

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	(1)	(2)	(3)	(4)	(5)
	Full-sample	Sub-sample (No NY firms)	Sub-sample (No TX firms)	Sub-sample (No CA firms)	Sub-sample (No S&P 500 firms)
State-GOV_{s,t}	0.118*** (3.78)	0.122*** (3.75)	0.101*** (3.07)	0.062* (1.90)	0.120*** (3.49)
State-PRESID_{s,t}	0.060* (1.88)	0.044 (1.30)	0.067** (2.08)	-0.028 (-0.86)	0.067* (1.93)
State-EPUS_{s,t}	-0.047* (-1.68)	-0.049* (-1.72)	-0.023 (-0.82)	-0.013 (-0.45)	-0.044 (-1.48)
No. of firm-month obs.	1,621,260	1,417,926	1,451,481	1,387,559	1,474,330
Adj. R squared (%)	8.7	8.7	8.9	8.5	8.5
Time FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes

- We run a panel regression (1992 - 2020) using all available firm-state level observations. State government is united when one party controls all of the governor (state-president), state Senate, and the state House.
- Full sample result in column (1), sub-sample results that excludes certain states (column (2) through (4)) all show that government cycle holds at the state level. Finally, excluding S&P constituents provides the same result.

Appendix: United Kingdom results

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Countries	Sample	United Government	Divided Government	Difference
United Kingdom	1922 - 2022	5.04	-9.06	14.10**
		(2.47)	(-1.08)	(2.11)

- In the United Kingdom, a ‘hung’ parliament takes place when no single party holds a majority of seats (usually 326 out of 650 seats) in the House of Commons. We make use of this fact to define a government as Unified (Divided) when a single party holds (does not hold) a majority of seats.
- The prime minister in the UK is the leader of the party that wins the most seats at a general election (see <https://www.parliament.uk/site-information/glossary/prime-minister/>)

Appendix: Causality issue revisited

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- **Reverse causality:** While voters put economic concerns as top priority, other issues such as education, healthcare, and crime concerns are also very important (voters are multi-dimensional)
 - Suppose, contrary to our argument, that divided government is the result of low asset prices. The stock market should experience a significant decrease prior to the midterm or presidential election, as this would allow investors to witness the abysmal performance of the stock market during election years and encourage them to vote in favor of divided governments.
 - We test this hypothesis by calculating average returns on election year (from January up to October) and examine whether mean yearly returns that result in divided government is lower than the mean yearly returns where voters choose united government. We do not find results that support this claim.
- **Selection bias:** given that we consider an entire set of firms traded on the major U.S. stock markets, selection issue does not apply

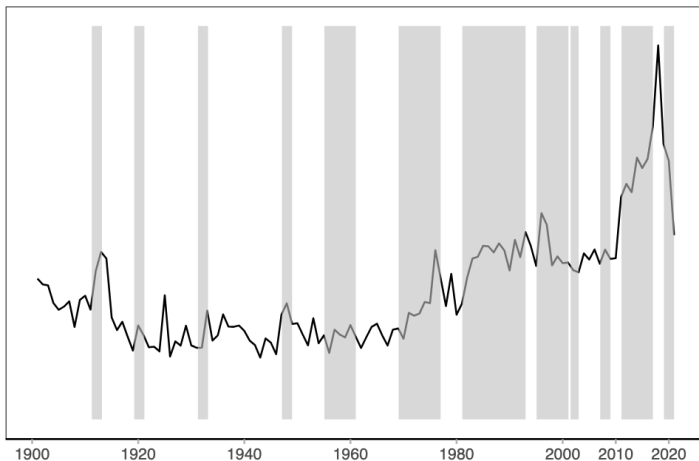
Appendix: EPU Index

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Panel A: Dependent variable is log EPU index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
United	-0.036*		-0.079***	-0.036*		-0.084***	-0.055**
Government	(-1.65)		(-4.01)	(-1.70)		(-4.20)	(-2.36)
Democratic		0.145***	0.166***		0.158***	0.181***	-0.003
President		(6.88)	(8.50)		(7.33)	(8.97)	(-0.15)
NBER				0.024	0.065***	0.072***	
				(0.97)	(2.61)	(2.88)	
CFNAI							-0.049**
							(-2.51)
Observations	1451	1451	1451	1451	1451	1451	645
Constant?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2 (%)	2.0	3.2	4.1	3.0	3.6	4.6	4.0

Appendix: Partisan Conflict Index (PCI)

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PCI index where shaded areas are Divided governments regime (data: 1900 - 2020 yearly)
Data is from Marina Azzimonti, [Fed Philadelphia link](#)

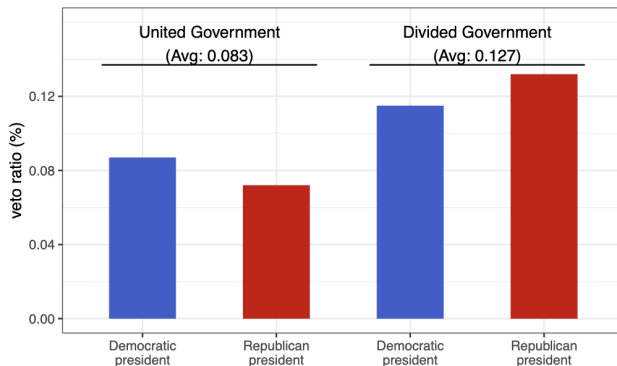
Appendix: Treasury Premium

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		(1)	(2)	(3)
		B30_TBL	B20_TBL	B10_TBL
Governments	United	-2.71	-2.05	-1.52
		(-1.87)	(-1.60)	(-1.69)
	Divided	3.88	3.75	2.73
		(2.21)	(2.60)	(2.51)
	Difference	-6.60***	-5.76***	-4.20***
		(-2.76)	(-3.04)	(-3.10)
Presidents	Democrat	-0.77	-0.21	-0.19
		(-0.48)	(-0.15)	(-0.19)
	Republican	3.16	3.01	2.20
		(1.95)	(2.22)	(2.11)
	Difference	-3.96	-3.24	-2.40
		(-1.62)	(-1.53)	(-1.54)

Appendix: Congressional Bills

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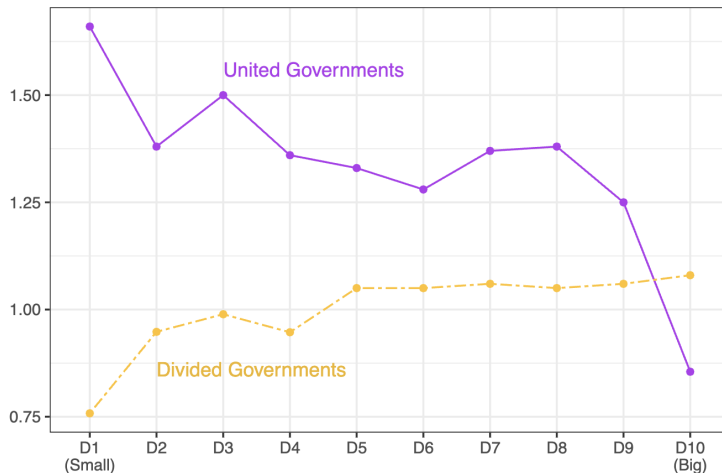
- We are interested in how many proposed bills are eventually vetoed by the sitting president, as this indicates a form of political conflict. Data: all congressional bills proposed from 80th Congress to 114th Congress from Congressional Bills Project Database
- The large number of bills introduced in Congress means that even a small percentage difference makes a significant impact. In fact, a 0.04% (0.127% - 0.083%) difference translates to 2.5 more bills being vetoed during divided governments compared to united governments.

Appendix: Earnings Calls Transcripts

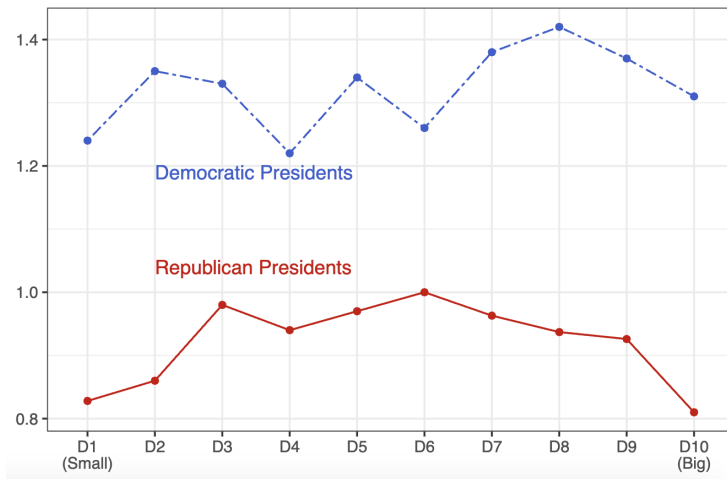
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- We follow Hassan et al. (2019) in constructing firm-level exposure to economic downturn by measuring their frequency of mentioning relevant terms during their conference earnings calls that take place every quarter from 2002 to 2023.
- Relevant terms: “downturn”, “crisis”, “economic turmoil”, “challenging time”, ...
- We apply winsorization (at the 5th percentile) to the right side of firm exposure to economic downturn because some firms disproportionately mention economic downturns more than others. This was especially prominent during 2008 and 2020, which happened to coincide with divided governments.
- **Result:** during conference calls, firms mention terms related to passive economic outlook 1.8% more (t-stat: 7.3) under divided governments

Appendix: Conditional SMB performance, 1983 - 2020



Appendix: Conditional SMB performance, 1983 - 2020



Appendix: QMJ Interaction, 1957 - 2020

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Sample period: 1957:01 - 2020:12

$$SMB_t = \alpha + \beta RMRF_t + \beta_{-1} RMRF_{t-1} + h \times HML_t + m \times MOM_t + q \times QMJ_t + \varepsilon_t$$

Regime	α	$t(\alpha)$	R-squared	QMJ included?
Full sample	0.12	1.17	0.10	No
	0.43	4.37	0.27	Yes
United Government	0.38	2.63	0.19	No
	0.45	3.30	0.28	Yes
Divided Government	0.01	0.05	0.11	No
	0.44	3.32	0.28	Yes
Democratic presidents	0.15	0.88	0.17	No
	0.46	2.97	0.34	Yes
Republican presidents	0.11	0.88	0.16	No
	0.35	2.86	0.25	Yes

- Using the same sample period as in Asness et al. (2019), we check the SMB performance conditional on the political regime (United government only, Divided government only, Democratic presidents only, and Republican presidents only)
- SMB alpha under United government is already 0.38% (t-stat: 2.63) without QMJ. SMB in other regimes only show resurgence once the QMJ is taken into account