

# **Partisan Impacts on the Economy:** Evidence from Prediction Markets and Close Elections and **Party Influence in Congress and the Economy**

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# Overview

- Do elections matter for asset prices?
- Presidential elections matter. GOP wins =>
  - 2% increase in S&P 500
  - 10 bp increase in Treasury yields (since 1980)
  - Stronger \$
- Congressional elections matter less
  - GOP control of one house => 20-60 bp increase in S&P
- Broader methodological points
  - Prediction markets help calibrate value-relevant news
  - Prediction markets can significantly improve on traditional event studies

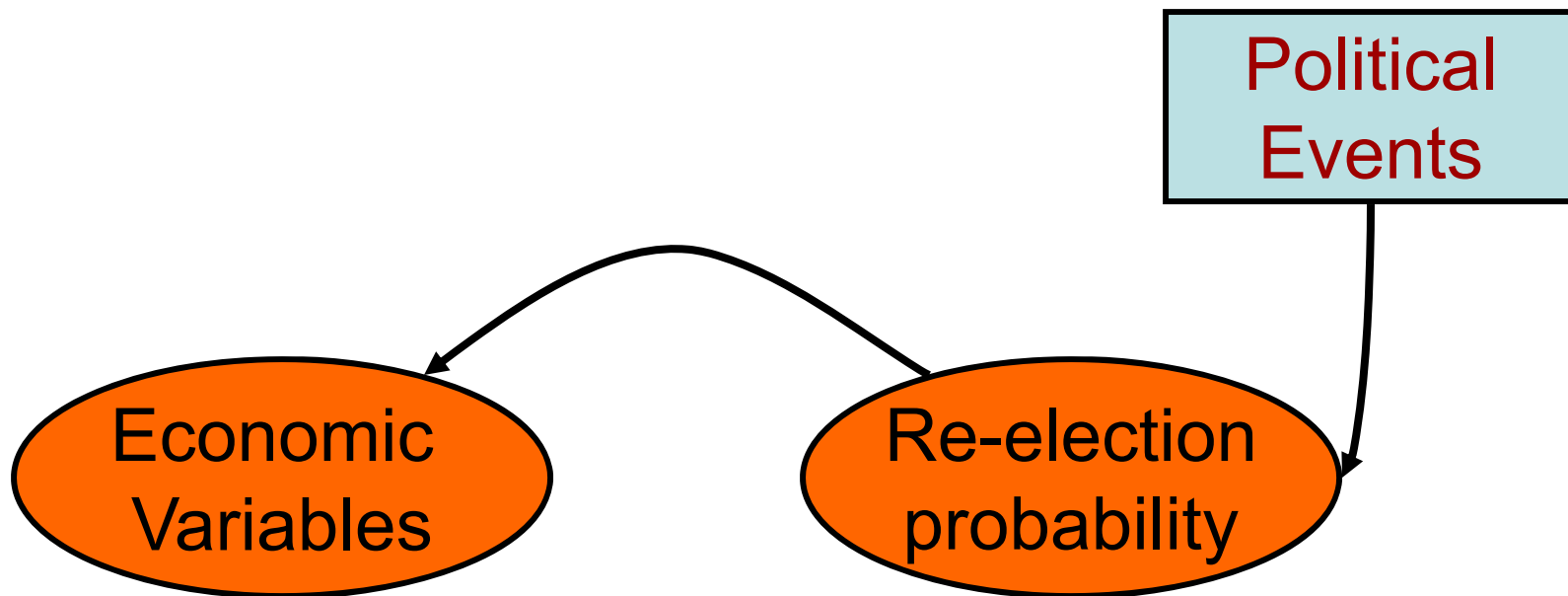
# Do elections affect the economy?

- No clear theoretical prediction
  - **Models predicting policy convergence:** Hotelling (1929), Downs (1957), Lindbeck and Weibull (1987), Baron (1994)
  - **Models predicting policy divergence:** Citizen candidate (Besley and Coate 1997), Party Factions (Roemer 1999), Strategic Extremism (Glaeser et. al. 2005)
- If they do, which elections matter?
  - How important is the Executive Branch vs. Congress?
  - How much “control” does control of Congress really imply?

# Methodological research question

- Can prediction markets “save” event studies?  
They help with:
  - Measuring pre-event probability
  - Determining event window length
  - Controlling for other news released with event (e.g., impact of 2004 election on 2008)
  - Expanding set of analyzable events (non-surprise events, events that never happen, events before they happen)
- But require (even greater) faith in efficient markets
- And provide new opportunities for correlation vs. causation confusion

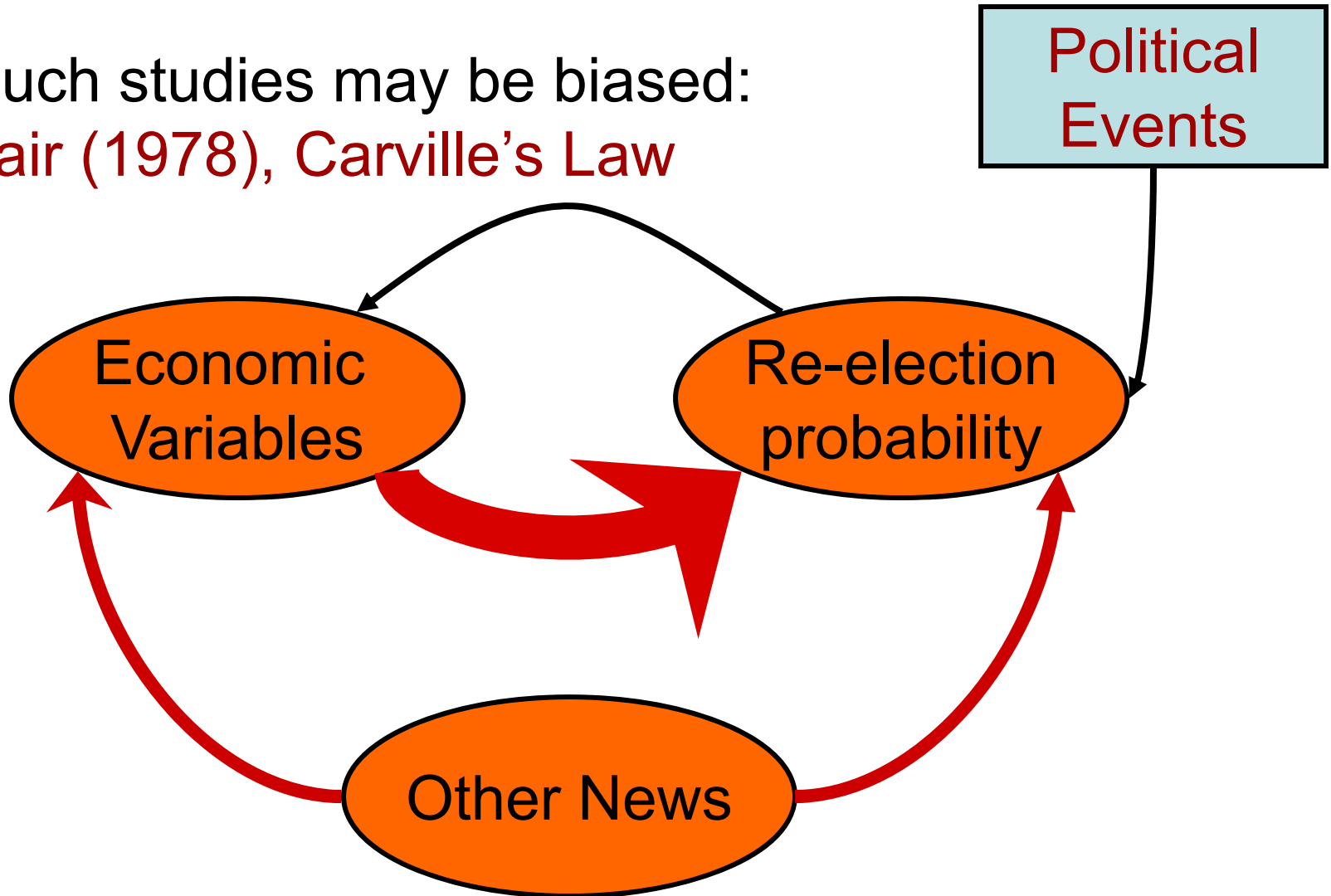
# Prediction market event studies



- Forbes and muni bonds (Slemrod and Greimel, 1999)
- UK elections and the FTSE (Herron, 2000)
- A cottage industry prior to the 2004 election

# Issues

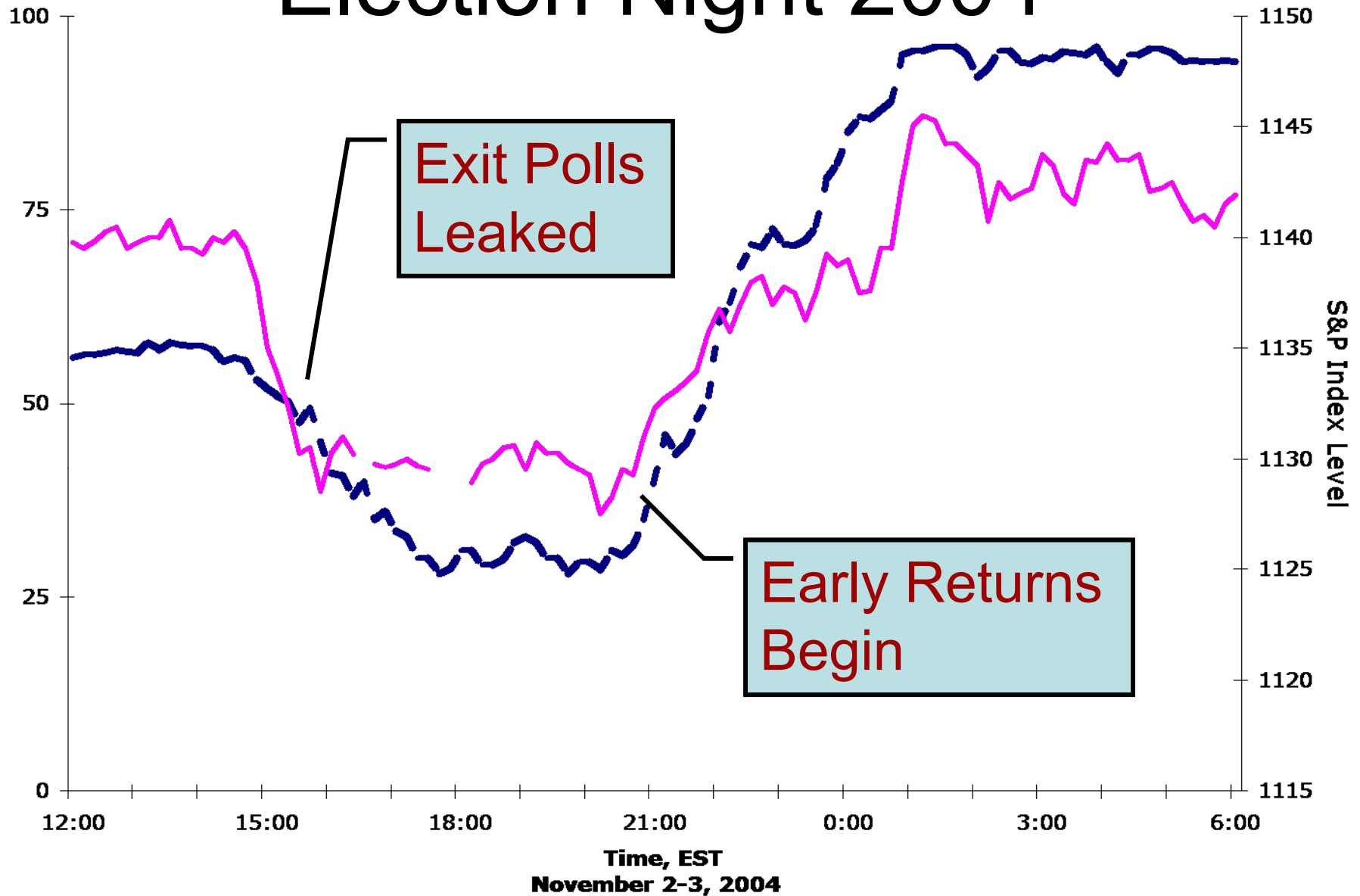
- Such studies may be biased:  
**Fair (1978), Carville's Law**



# Two approaches to identification

- Instrumental variables
  - An indicator that captures policy news, but not news that affects outcomes directly
    - A market on who will win a debate
- Instrumental events
  - An event window in which news is all policy news
  - E.g., election night, Dean's Scream

# Election Night 2004



--- % Probability Bush wins Presidency (Tradesports)    S&P 500 Future, Delivery Date 12/2004 (CME)



# Election Night 2004

- To estimate the effect of Bush vs. Kerry we estimate the model:

$$\Delta \text{Log}(S\&P\ 500_t) = \beta \Delta \text{Re-election probability}_t + \varepsilon_t$$

- Prediction markets are slower to move than financial markets
  - use 10 and 30 minute windows
  - Scholes-Williams as a robustness check
- Missing observations create heteroskedasticity
  - WLS to reduce impact of this
  - White (1980) standard errors for robustness to remaining heteroskedasticity

# Results: 2004

Financial Variable	10 Minute Intervals		30 Minute Intervals	
	Estimate	N	Estimate	N
	Dependent Variable: $\Delta \text{Log} (\text{Price Financial Variable})$			
S&P 500	0.016*** (0.004)	104	0.020*** (0.005)	35
Dow Jones Industrial Average	0.014*** (0.005)	84	0.016*** (0.005)	29
Nasdaq 100	0.019*** (0.005)	104	0.024*** (0.008)	35
Dollar (vs. Trade-Weighted Currency Portfolio)	0.004 (0.003)	84	0.005** (0.002)	34
	Dependent Variable: $\Delta (\text{Price})$			
Dec 04	1.068*** (0.350)	88	1.634*** (0.592)	29
Light Crude Oil Futures	Dec 05 0.642* (0.346)	85	1.032* (0.558)	28
Dec 06	-0.281 (0.751)	63	-0.901 (0.782)	21
	Dependent Variable: $\Delta (\text{Yield})$			
2 Year T-Note Future	0.095* (0.057)	84	0.105** (0.044)	30
10 Year T-Bill Future	0.108** (0.048)	91	0.116** (0.049)	31

# How biased is the other method?

Financial Variable	Daily Differences	5-day Differences	20-day Differences
Dependent Variable: $\Delta \text{Log}(\text{Price})$			
S&P 500	0.087*** (0.034)	0.128** (0.062)	0.243*** (0.065)
Dow Jones Industrial Average	0.093*** (0.032)	0.145** (0.064)	0.275*** (0.090)
Nasdaq 100	0.143*** (0.062)	0.212** (0.098)	0.299*** (0.107)
Dollar (vs. Trade-Weighted Currency Portfolio)	0.040** (0.019)	0.017** (0.022)	0.021 (0.044)
Dependent Variable: $\Delta(\text{Price})$			
Light Crude Oil Futures (Near Month)	0.468 (4.210)	-7.269** (3.586)	-12.570*** (3.213)
Dependent Variable: $\Delta(\text{Yield})$			
10 Year T-Bill Yield	0.214 (0.299)	0.967* (0.523)	0.202 (0.598)

**In this case, very.**

Snowberg, Wolfers, and Zitzewitz, "Partisan Effects" and "Party Influence"

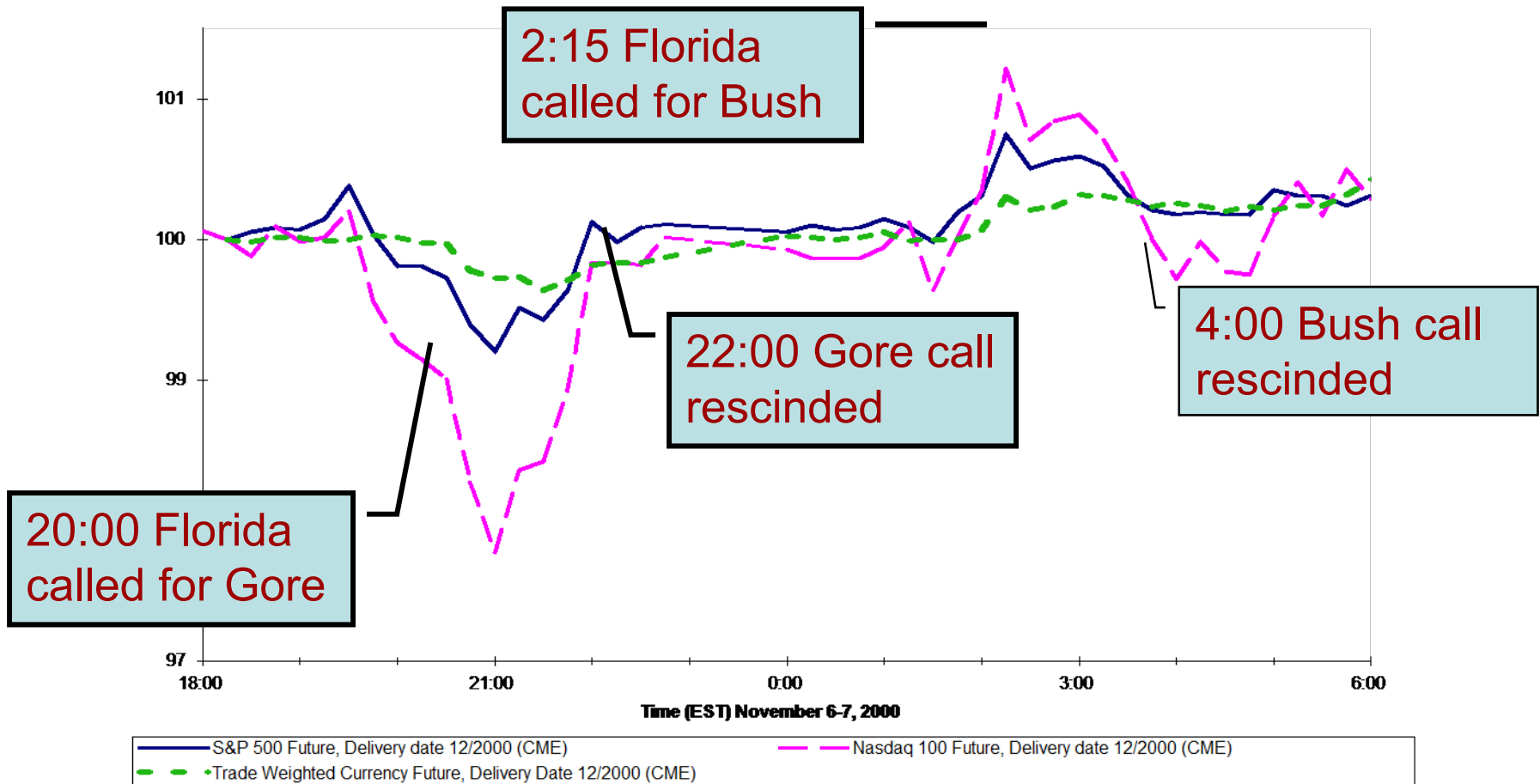
# Results: 2004

- Under Bush v. Kerry:
  - Stock indices rise 1.5% - 2.5%
  - Oil prices are higher for up to a year
    - Long term oil futures not liquid enough for strong conclusions
  - The US dollar strengthens somewhat
  - Bond yields are 10 basis points higher
    - Similar results from inflation-indexed bonds
- Rough interpretation:
  - Bush is perceived as good for returns to capital
  - But he is perceived as fiscally less conservative than Kerry
  - Caveat: this tells us nothing about welfare
- Is this a Republican effect, or an incumbency effect?
  - Look at 2000 election
- Is this a Bush effect or a Republican effect?
  - Examine earlier elections: 1880 onward

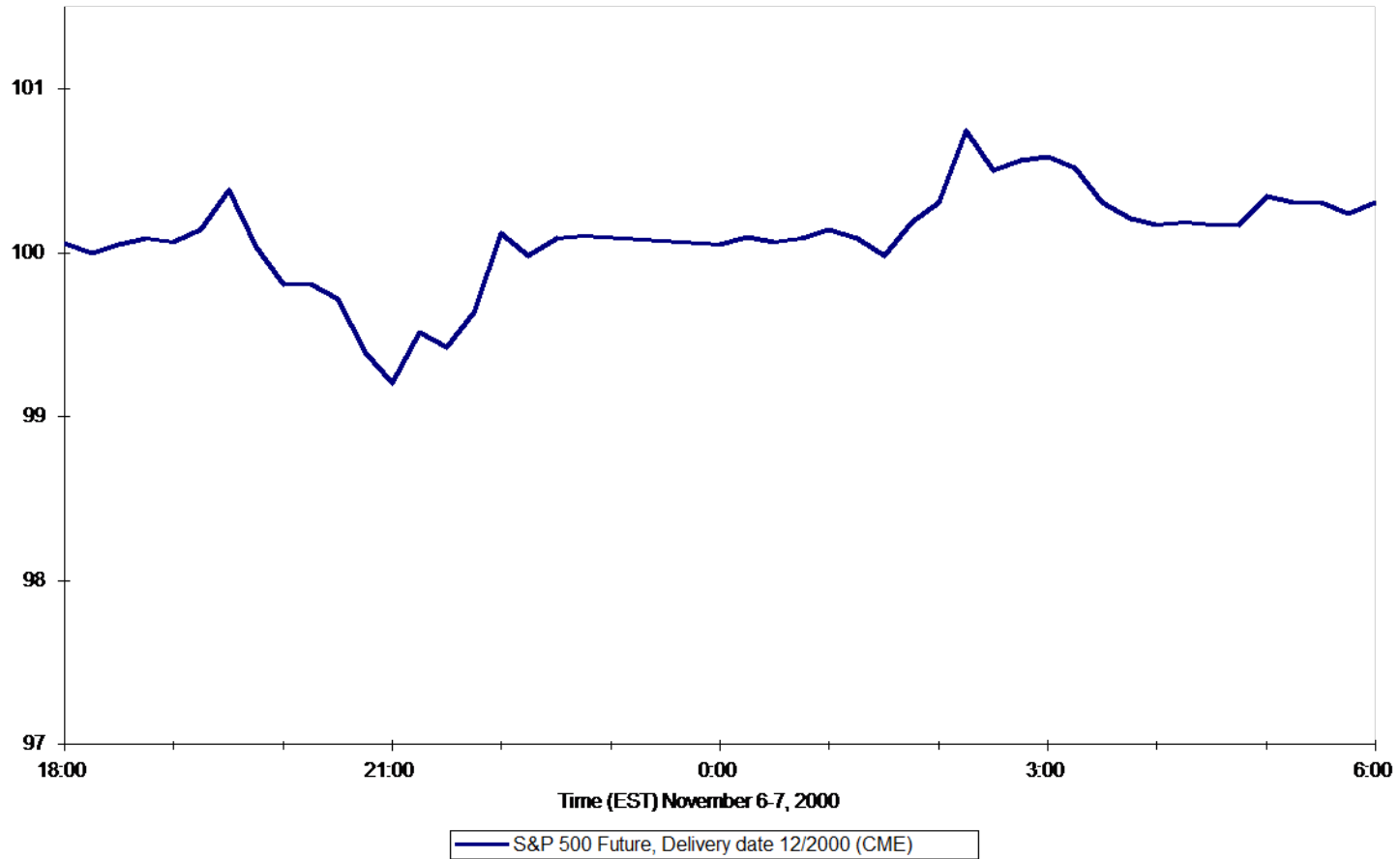
# Election Night 2000

- The 2000 election would make another great study, except ...
  - There was no prediction market tracking the probability of victory of either candidate
    - IEM tracked winner of the popular vote
    - Centerbet closed their contract the morning of the election
- Centerbet closed with Bush at a 60% chance of winning
  - Can use this to bound the effect of Bush vs. Gore (the candidates, not the court case)

# Election Night 2000

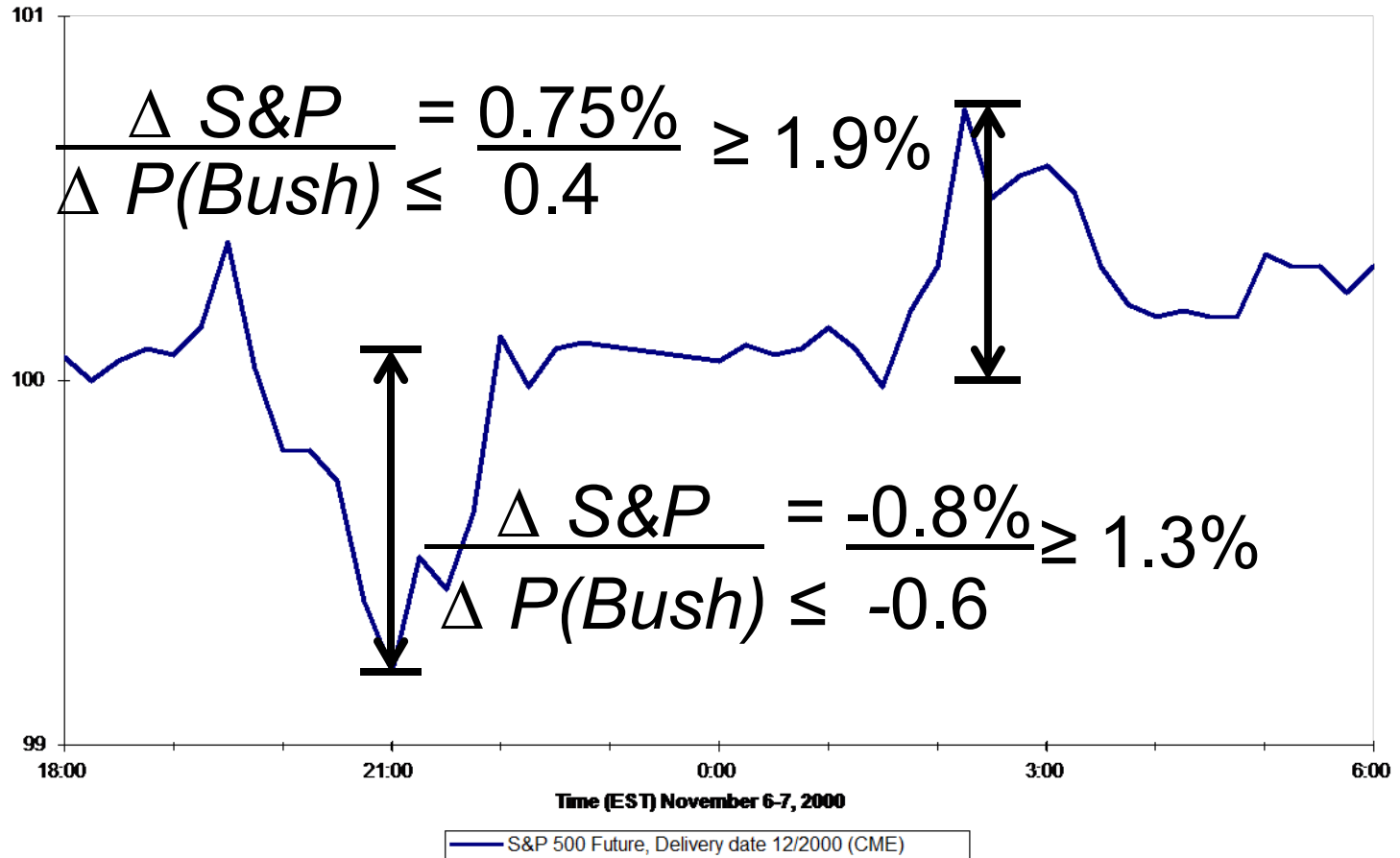


# Election Night 2000



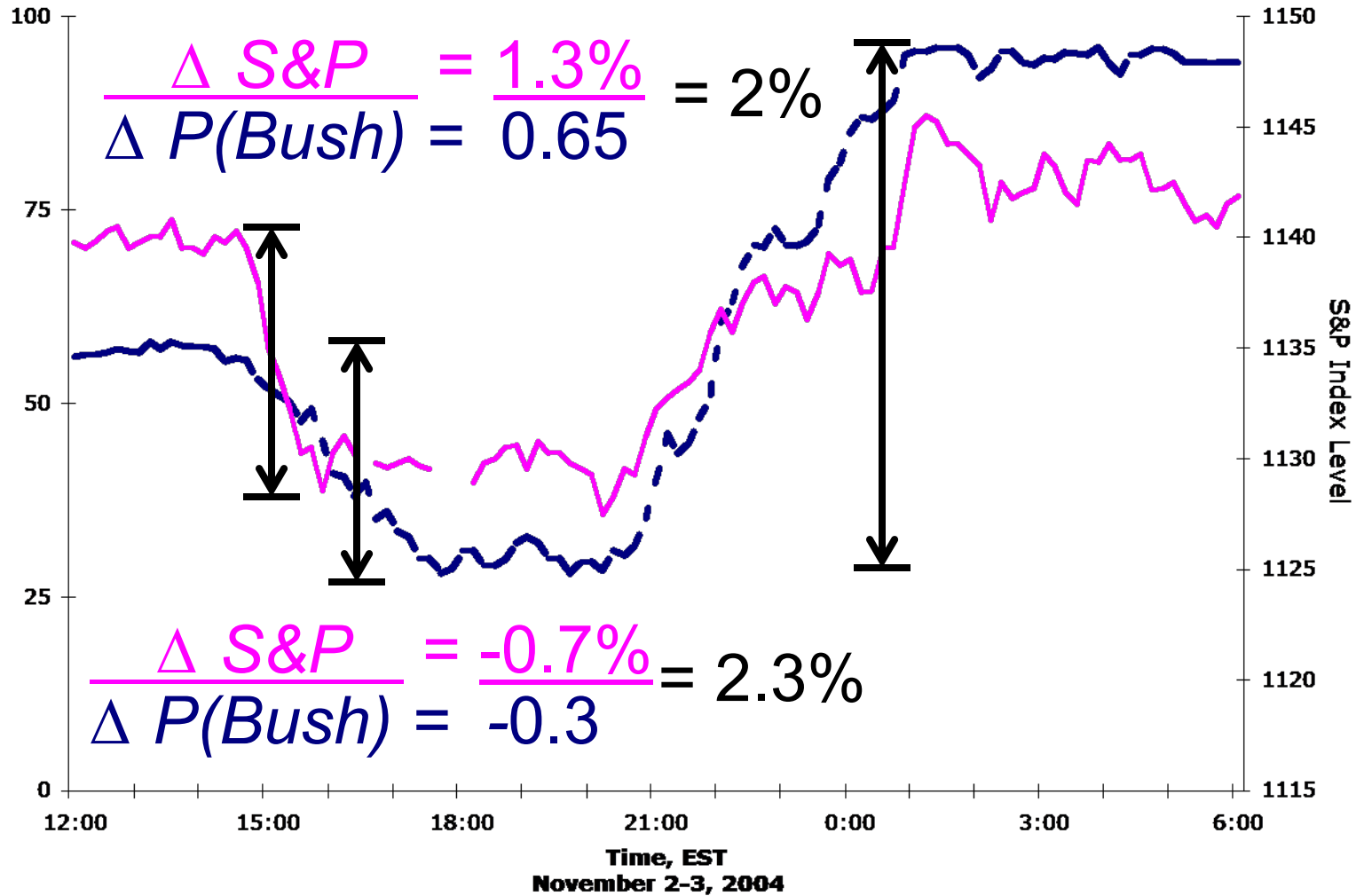
Snowberg, Wolfers, and Zitzewitz, "Partisan Effects" and "Party Influence"

# Election Night 2000





# Same exercise in 2004

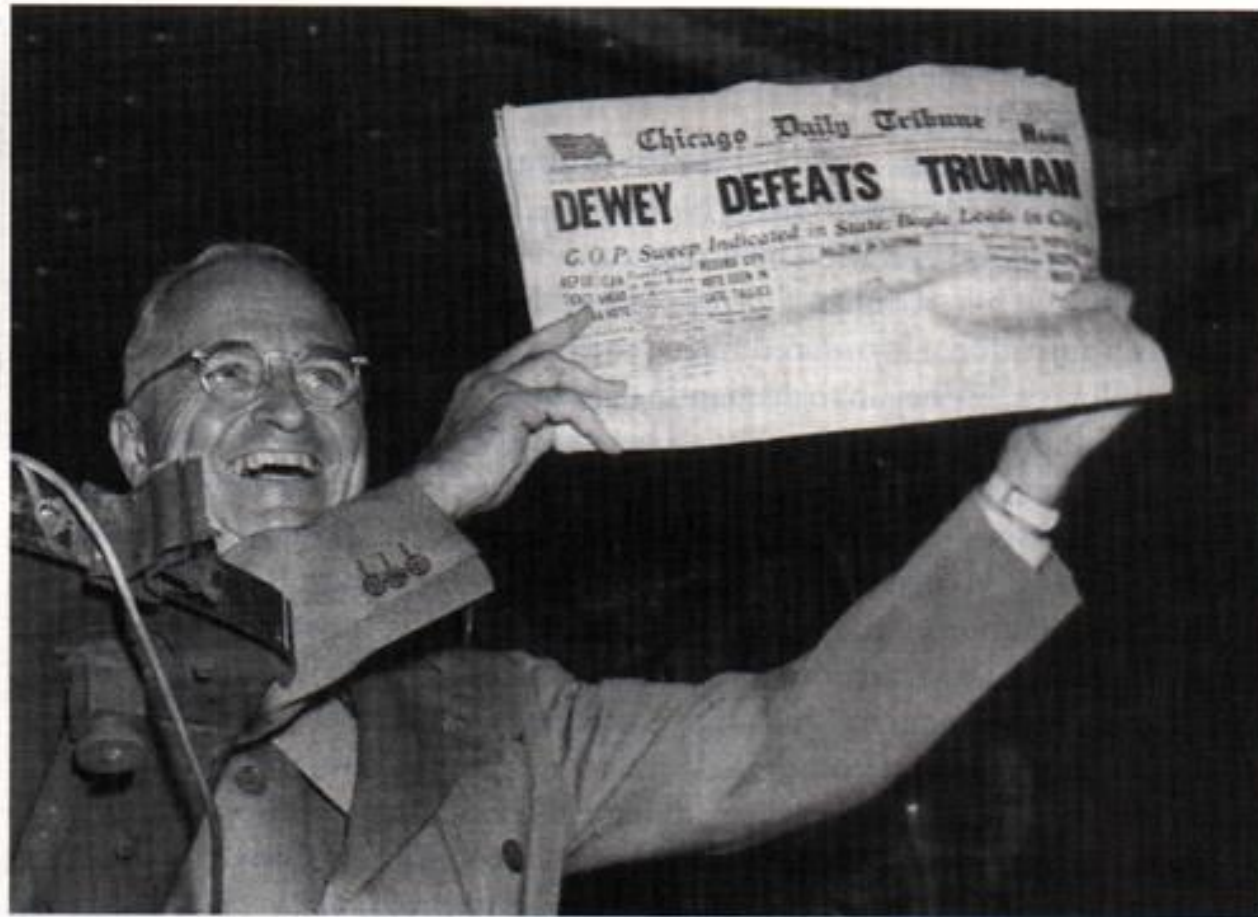


# Results: 2000 and 2004

Financial Variable	2004	2000	
		21:00	2:15
S&P 500	2.0%	1.3%	1.9%
Nasdaq 100	2.4%	3.7%	3.0%
Dollar (vs. Trade-Weighted Currency Portfolio)	0.5%	0.6%	0.7%

- Estimates in-line with each other and 2004  
-> a Bush effect, not an incumbency effect
- Can we say more about partisanship's effect on these economic variables?

# How Common are Such Events?



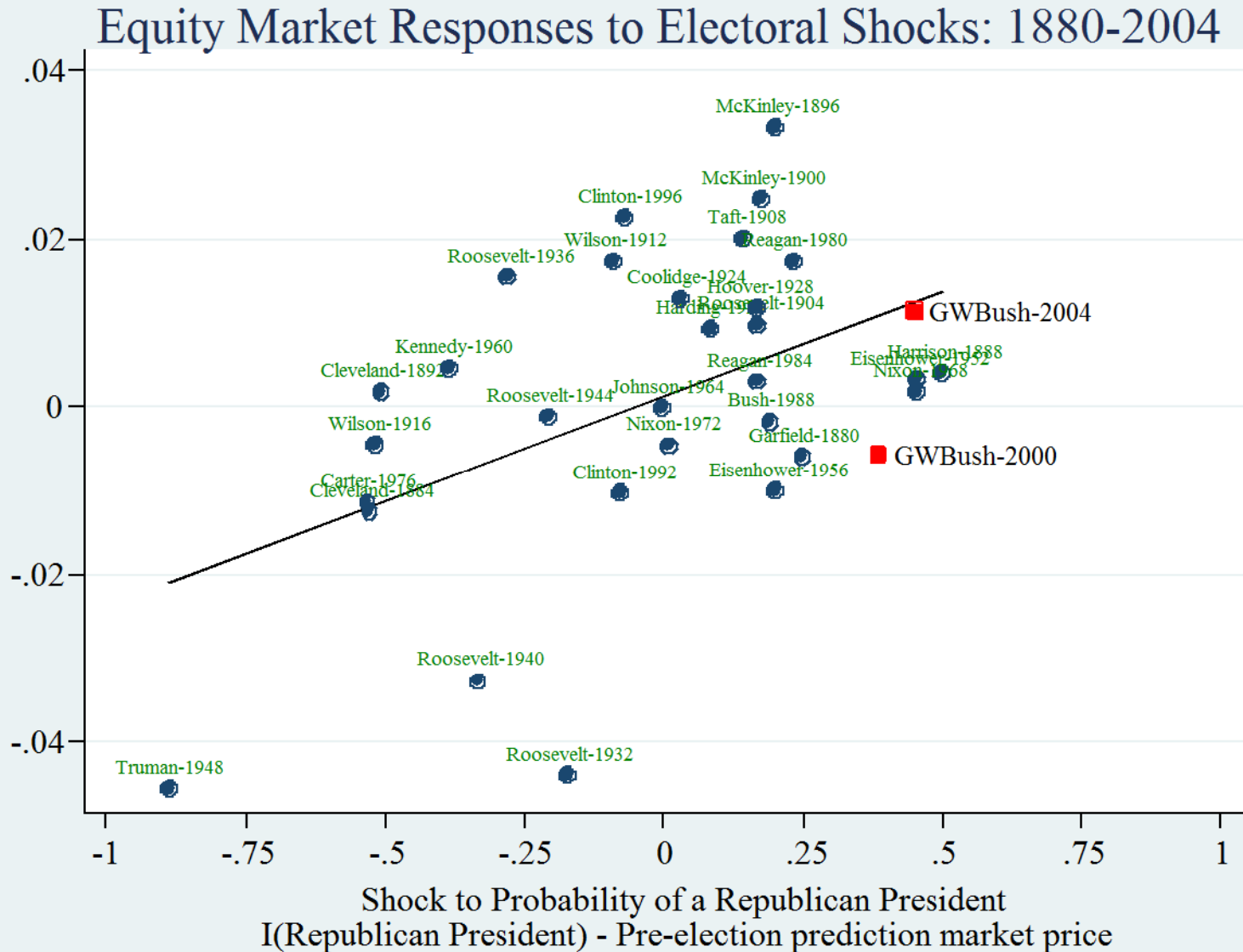
Somewhat.

Snowberg, Wolfers, and Zitzewitz, "Partisan Effects" and "Party Influence"

# Electoral Surprise

- Electoral Surprise is defined by:  
 $I(\text{Rep. won}) - P(\text{Rep. win before election})$
  - If, before an election the Republican has a 60% chance of winning then electoral surprise is:
    - + 40% if the Republican wins
    - - 60% if the Democrat wins
  - Every election has some degree of surprise, ranging from:
    - Slight (3%) in Davis vs. Coolidge (1924)
    - Extreme (-89%) in Truman vs. Dewey (1948)
- ⇒ Markets move in response to this surprise

# Equities and Electoral Surprise



# Equities: 1880 - 2004

Dependent variable: Pre-election to post-election return				
GOP President	0.0129 (0.0089)			
$\Delta$ Prob(GOP President)		0.0297*** (0.0118)	0.0249*** (0.0082)	0.0242*** (0.0085)
$\Delta$ Prob(Incumbent)				-0.0038 (0.0085)
Constant	-0.010 (0.0059)	-0.0027 (0.0040)	0.0014 (0.0028)	0.0013 (0.0028)
Sample	1928 - 1996	1928 - 1996	1880 - 2004	1880 - 2004

- Santa-Clara and Valkanov (2003) conduct a similar analysis and find no election day effects (1928-1996)
  - In their analysis shock is always  $\pm 100\%$
- Longer-run analysis confirms incumbency is not a factor



# Other issues

- 2008 Presidential party odds did not change
  - Suggests no incumbent party advantage for Presidency
- Adding Congressional control contracts in 2004 does not alter results
  - Not much variation in Congressional probabilities on election day
  - Next paper suggests effect of Congress not that large anyway
- Adding controls for expected electoral vote total in 2004 does not alter results
  - Suggests winner mattered much more than margin of victory
- Do markets rally in response to the resolution of uncertainty?
  - No evidence of this



# Other issues (2)

- Did market declines when exit polls leaked influence late voting?
  - Maybe, but similar estimates from 3-6 pm and 6pm-midnight windows suggests this is not biasing results
  - Comparison of exit poll panels suggests no shift toward Bush in evening vote
- Reconciliation with studies showing higher stock returns under Democrats (e.g., Santa Clara and Valkanov, 2003)
  - These studies have low power (SD of 4-year returns = 37%, N since 1880 = 31 => SE of GOP-Dem difference = +/- 10%)
  - Excluding 1929-36 flips sign
  - Results suggest that traders do not **expect** past outperformance under Dems to continue

# Party Influence in Congress and the Economy

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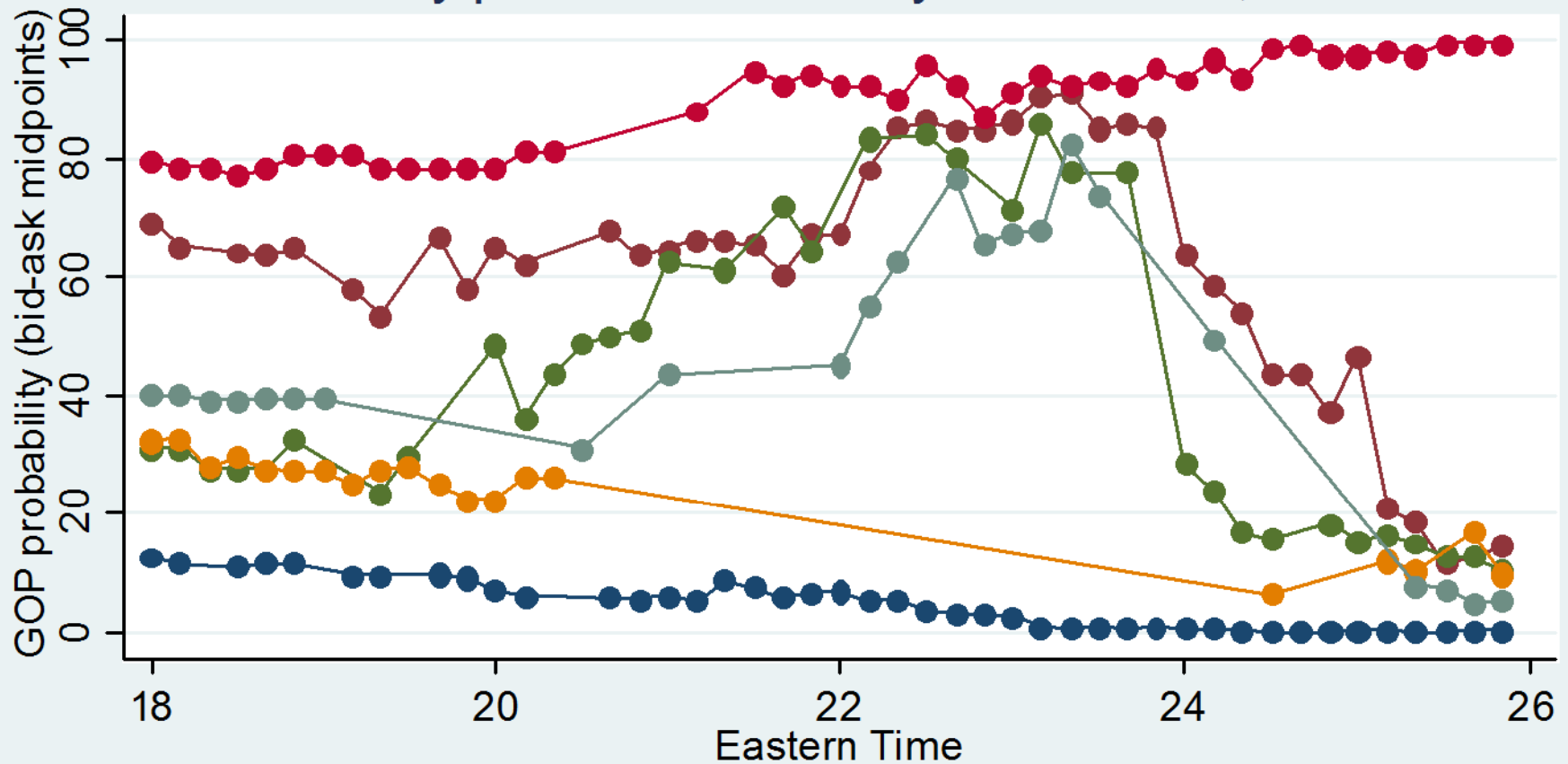
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# What about Congress?

- Competing theories of legislator behavior
  - Cartel theories (Cox and McCubbins, 2002)
    - Policy is made by the median member of the majority
      - Suggests similar effects as in Presidential elections (Median Democrat v. Median Republican)
  - Weak discipline (Krehbiel, 1993)
    - Party labels are only a rough description of preferences
      - Suggests policy made by median representative
      - Median rarely shifts much (Joe Lieberman v. Lincoln Chafee)
- “Divided” versus “Unified” Government
  - Is divided better than unified control by either party?
  - Was the Democrats winning 2 houses in 2006 less than twice as important as their winning one?

# GOP victory probabilities every 10 minutes, 11/7/2006



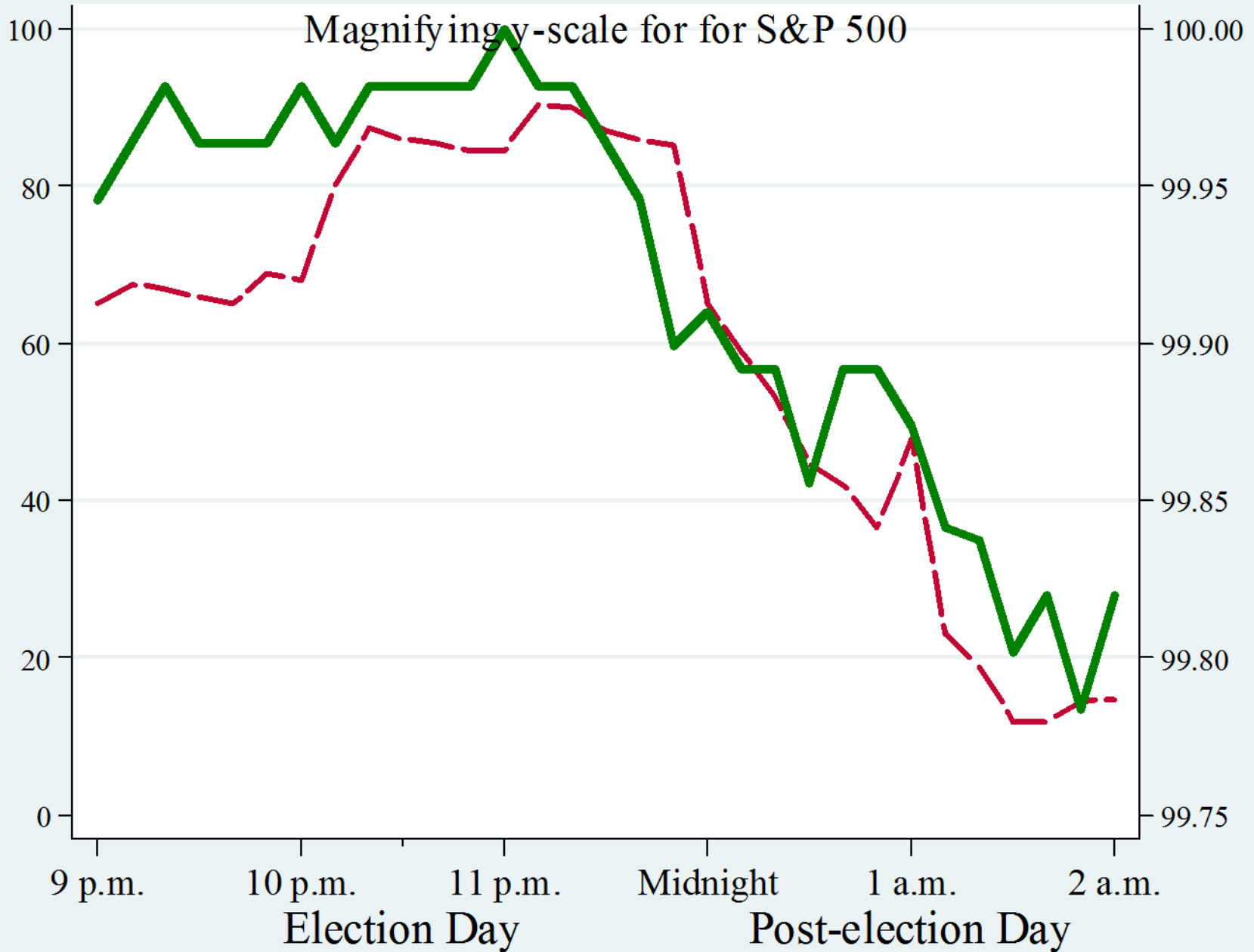
Bid-ask midpoints, data treated as missing if bid-ask spread is wider than 10 points.

# Close-up: 2006 Senate experiment 9 p.m.-2 a.m.

Magnifying y-scale for for S&P 500

Tradesports: Prob. Republican Senate Majority

S&P 500: Index 4pm=100



# Congress v. The White House

Table 1

Dependent Variable:	$\Delta \text{Log}(\text{Price})/100$				$\Delta \text{Price} (\$)$		$\Delta \text{Yield} (bp)$	
	S&P 500	Nasdaq 100	Japanese Yen	Euro	Canadian Dollar	Oil	2 Year T-Note	10 Year T-Note
Congressional Elections, 2006								
$\Delta \text{Pr}(\text{Senate})$	0.174* (.089)	0.156 (.101)	0.025 (.045)	0.087 (.061)	0.022 (.045)	0.034 (.079)	0.918 (1.15)	0.701 (.693)
$\Delta \text{Pr}(\text{House})$	0.537 (.729)	-0.017 (1.11)	0.015 (.707)	-0.450 (.634)	0.553 (.687)	-0.209 (.893)	-1.31 (6.54)	-2.11 (6.09)
n	30	29	28	28	28	30	26	27
Presidential Elections, 2004								
$\Delta \text{Pr}(\text{President})$	2.05*** (.503)	2.40*** (.814)	-0.531* (.296)	-0.694* (.358)	-0.488** (.221)	1.706** (.659)	10.8*** (3.58)	12.0*** (4.65)
n	35	35	34	34	34	29	30	31

Notes: \*\*\*, \*\*, \* denote statistically significant at 1%, 5% and 10%, respectively. (White standard errors in parentheses.)

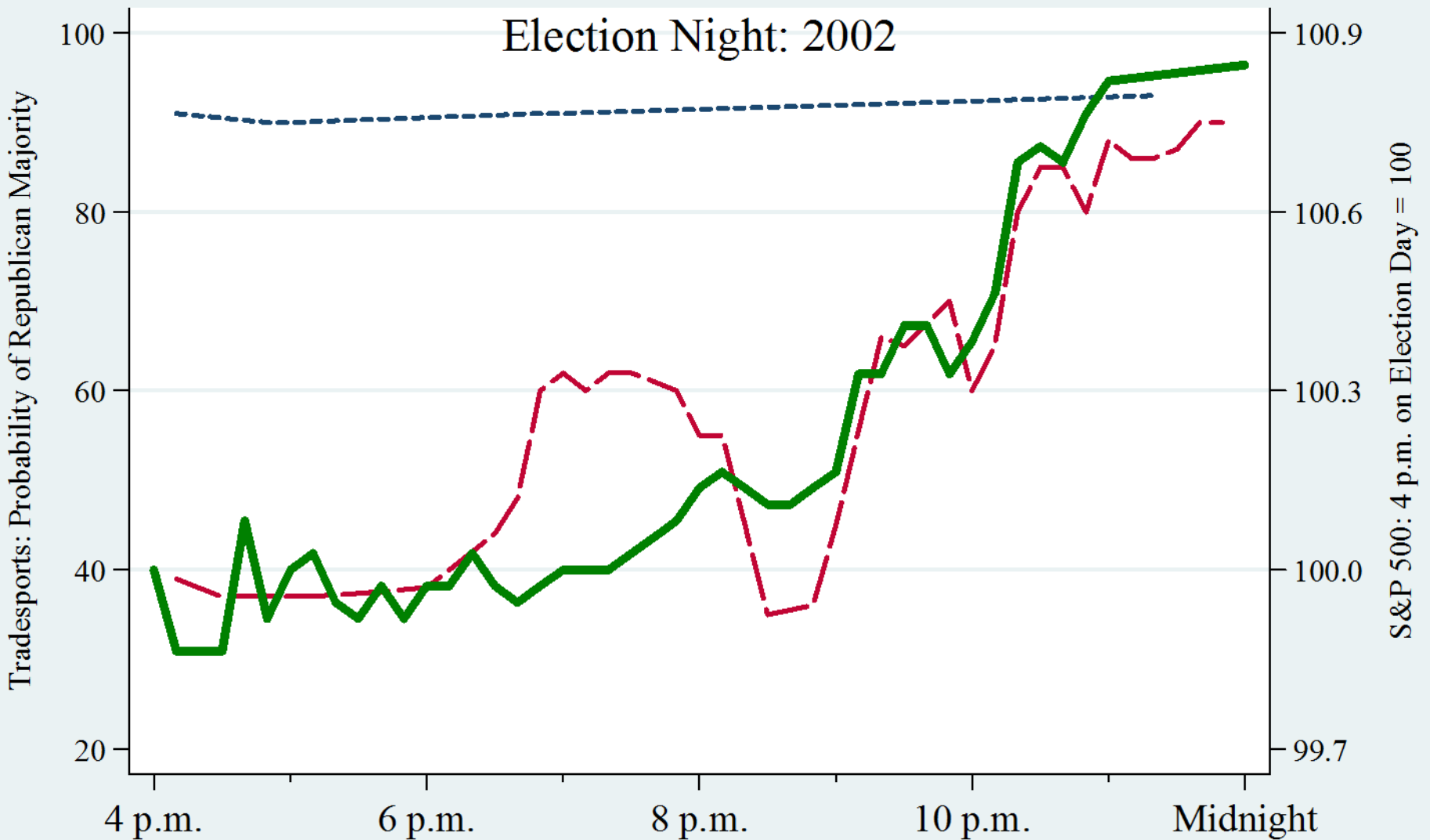
Sample period is 4 p.m. Eastern Time on 11/7/2006 to nine a.m. on 11/8/2006, for 2002 it is 4pm on 11/5/2002 to 12pm on 11/6/2002.

Election probabilities are the most recent transaction prices collected every thirty minutes from Tradesports.com. When there are missing observation, and the bid and ask prices are within 10 percentage points of each other, we use the bid-ask average.

All futures have delivery dates of December 2006, December 2004 and December 2002, respectively.

- Supplementary evidence: Large “Rumsfeld effect”
  - S&P 500 rose 0.6% on news of his resignation
  - Tradesports suggests that markets had already priced in a 40% chance of a 2006 resignation

# Election Night: 2002



- Probability of a Republican Majority in the Senate (Tradesports)
- Probability of a Republican Majority in the House (Tradesports)
- S&P 500 Future (CME), right axis

# Congressional Elections, Compared

Table 1

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	S&P 500	Nasdaq 100	Japanese Yen	Euro	Canadian Dollar	Oil	2 Year T-Note	10 Year T-Note
<b>Panel A: Congressional Elections, 2006</b>								
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$\Delta \text{Pr}(\text{House})$	0.537 (.729)	-0.017 (1.11)	0.015 (.707)	-0.450 (.634)	0.553 (.687)	-0.209 (.893)	-1.31 (6.54)	-2.11 (6.09)
n	30	29	28	28	28	30	26	27
<b>Panel B: Congressional Elections, 2002</b>								
$\Delta \text{Pr}(\text{Senate})$	0.593** (.231)	0.728 (.419)	-0.196 (0.187)	0.011 (.127)	0.071 (.068)	0.148** (0.060)	4.51* (1.81)	2.21* (1.02)
n	13	12	13	13	12	14	7	7
<b>Panel C: Presidential Elections, 2004</b>								
$\Delta \text{Pr}(\text{President})$	2.05*** (.503)	2.40*** (.814)	-0.531* (.296)	-0.694* (.358)	-0.488** (.221)	1.706** (.659)	10.8*** (3.58)	12.0*** (4.65)
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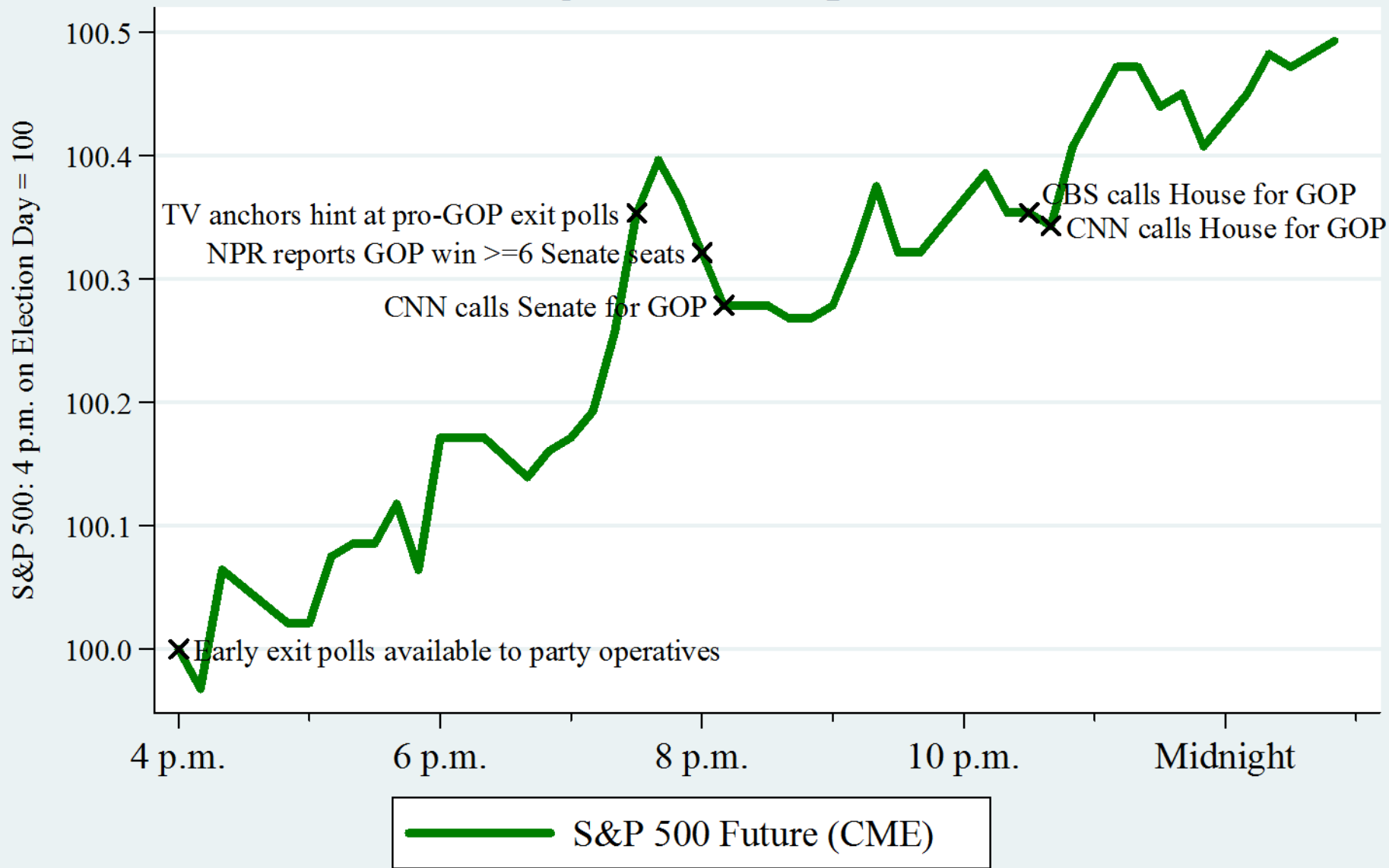
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# Election Night: 1994 Republican Takeover



Note: Timing of info reflects press reports. (Intraday prediction markets were unavailable to track electoral shocks.)  
Election eve: Prob. GOP House majority = 20%; Prob. GOP Senate majority = 70%

# 1994 Republican Takeover

- Election-eve odds:
  - Prob.(GOP Senate) = 70%
  - Prob.(GOP House) = 20%
- From 4pm-11pm
  - S&P 500 rose 0.40% (standard error = 0.29%)
  - Oil prices rose \$0.26 (0.07)
  - Yen rose 0.17% (0.18)
  - German Mark rose 0.20% (0.17)
  - 10-year Treasury note was unchanged
- Standard errors are SD of 4pm-11pm changes from 50 weekdays prior to 1994 election and 50 weekdays after.

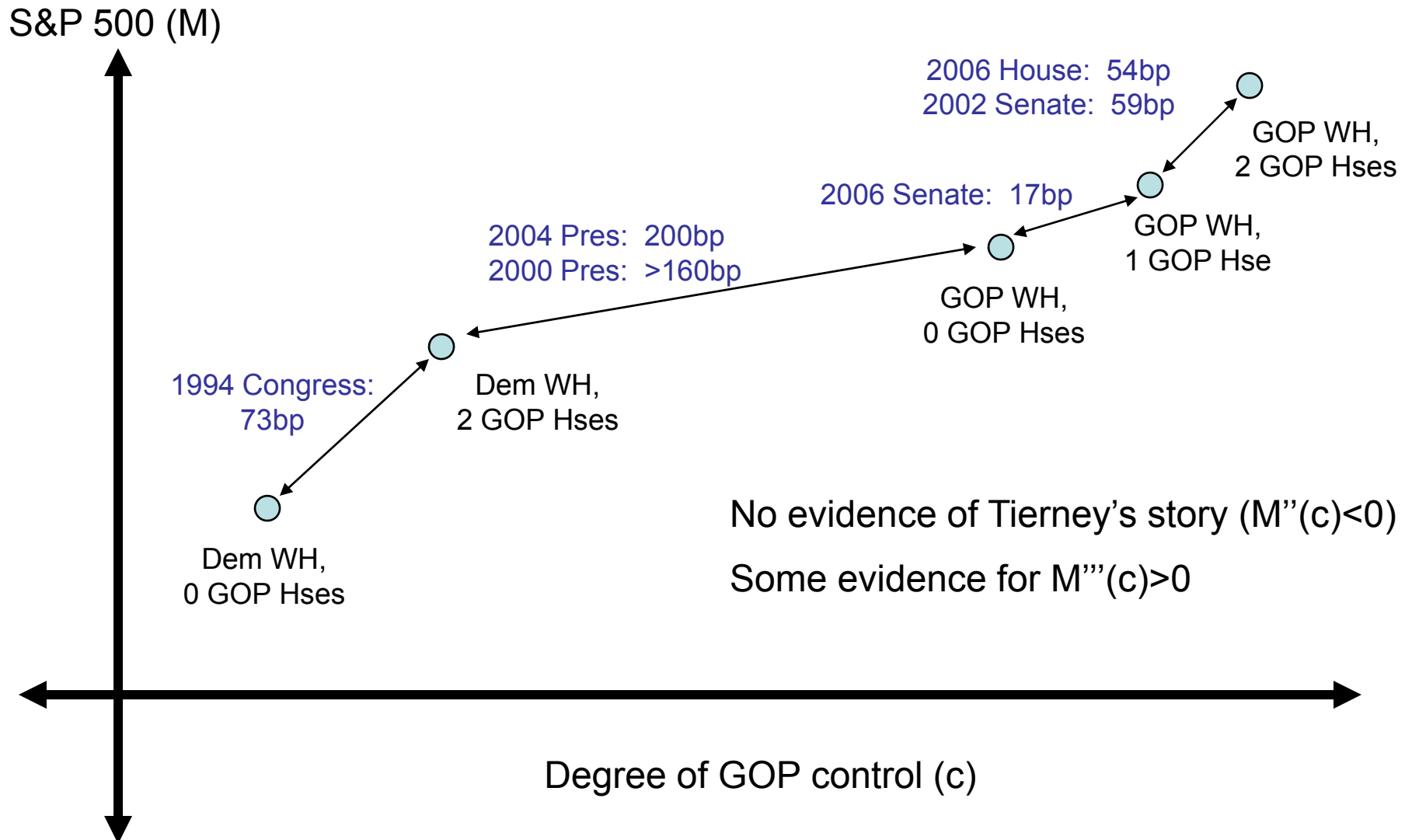
# Jeffords Experiment

- May 2001: Jim Jeffords handed the senate back to the Democrats
  - Jayachandran (*JLE* 2006) estimates
    - Average Democrat-supporting firm rose 0.11%
    - Average Republican-supporting firm fell 0.43%
    - Net effect = -0.32%
  - Unfortunately the Jeffords defection played out over too long of a period (a week) for us to apply our methods

# Divided Govt v. Unified Govt

- *“The prospect of gridlock has been welcomed, as usual, on Wall Street”*
  - John Tierney, NY Times, 11/14/2006
- 2006: Republican House loss created divided govt
  - Yet markets fell in response
- 2002: Republican Senate victory created unified govt
  - Yet markets rose in response
- 1998: No experiment: Republicans won as expected
- 1994: Republican takeover
  - Markets rose, but roughly consistent with pure partisan effect
- Earlier Presidential elections
  - On average no effect of unified government

# Shape of the stock market-GOP control relationship



# Conclusions about substance

- Evidence of systematic partisan effects
  - Effects on equity markets consistent with usual characterization of right-wing parties
  - But bond market effects differ: Republicans cause higher interest rates.
- Congressional elections yield:
  - Similar qualitative pattern of partisan effects
  - But quantitatively much smaller
  - Suggesting weak party discipline (or Congress irrelevant)
- Partisan effects overwhelm any preference for divided versus unified government
- Election-night experiments yielded very different estimates than previous observational studies

# Conclusions about method

- Prediction markets can help solve many of the problems with traditional event studies
  - Measuring pre-event probabilities
  - Identifying event window
  - Increasing precision (our SE for Senate 2006 is 0.09% vs. 0.9% for 1928-96 using traditional method)
  - Controlling for other information released
- But one needs to be **very** careful about identification
  - Pre-election correlations were very misleading