The Value of Majority Status: The Effect of Jeffords's Switch on Asset Prices of Republican and Democratic Firms*

Chris Den Hartog
Department of Political Science
University of California, San Diego
9500 Gilman Dr.
La Jolla, CA 92092-0521
cdenhart@ucsd.edu

and

Nathan W. Monroe
Department of Political Science
Michigan State University
321 South Kedzie Hall
East Lansing, MI 48824
monroen@msu.edu
contact author

Abstract

On May 24, 2001, Senator James Jeffords announced he would switch from Republican to independent, and would vote with Democrats on organizational matters, making the Democrats the Senate majority party. This change in majority party control occurred without any simultaneous changes in Senate membership or preferences. We take advantage of this controlled environment to test competing hypotheses derived from party- and preference-based theories of legislative organization. To conduct our test, we use "event study" methodology to gauge the effect of the Jeffords switch on the asset values of Republican and Democratic "constituent firms." We show that Republican firms' stock prices fell upon hearing the news of the switch, while Democratic firms' stock prices rose. Our results thus provide evidence that majority party status in Congress confers benefits on party constituents; our results also cast doubt on non-partisan theories of congressional organization.

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Introduction

On May 24, 2001 United States Senator James Jeffords announced that he was switching from Republican to independent and would vote with Democrats on organizational matters, effectively giving majority party control of the Senate to the Democrats. The announcement, which came just four months after Republicans obtained unified control of the federal government for the first time since 1955, sent shockwaves through the political landscape. Republican Senate Majority leader Trent Lott decried Jeffords's switch as "the impetuous decision of one man to undermine our democracy…. It was a 'coup of one' that subverted the will of the American voters who elected a Republican majority" (Berke 2001).

Jeffords's switch also created an unprecedented opportunity for testing competing partisan and non-partisan theories of congressional organization. On the one hand, in the view of those who think parties matter (Aldrich and Rohde 1998, 2001; Campbell, Cox, and McCubbins 2002; Cooper and Brady 1981; Cox and McCubbins 1993, 2002, 2004; Goodman and Nokken 2004; Finnochiarro and Marshall 2001; Jenkins, Crespin, and Carson N.d.; Kiewiet and McCubbins 1991; Nokken and Poole N.d.; Rohde 1991; Carson, Finnochiarro, and Rohde 2002; Sinclair 1983; Snyder and Ting 2002; Van Houweling 2005), the switch was a significant event that warranted the strong reaction described above. On the other hand, non-partisan, preference-based theories (Brady and Volden 1998; Krehbiel 1998) imply that the switch was not a significant event, since Senate membership, and therefore Senators' preferences, remained constant across the period encompassing the switch.

Previous attempts to test the two types of models against one another have been beset by an overriding problem: prior to the Jeffords switch, changes in majority status in

the U.S. Congress always resulted from elections, which simultaneously produced changes in membership and preferences.[1] In the Jeffords case, however, there was no change in Senate membership—rather, the only thing that changed was that Jeffords declared himself an independent and started voting with the Democrats, rather than the Republicans, on organizational matters. In a Senate that was divided 50-50 prior to the switch, this changed partisan control of the chamber.[2] The Jeffords switch therefore presents a golden opportunity for testing divergent hypotheses derived from partisan and non-partisan theories.

There are a number of ways in which majority status is thought to be valuable, and thus a number of ways we might go about trying to determine whether a change in

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[1] A caveat should be added to the claim that the change in majority status following from Jeffords's switch is a unique event. In 1881, at the start of the 47th Congress, the Senate consisted of 37 Democrats, 37 Republicans, and two independents, each of whom sided with a different party—thereby making Republican Vice President Chester Arthur the tie-breaking vote. When President James Garfield died and Arthur became President, the Senate was left evenly split, with no Vice President to break the tie. Arguably, this is another case of a mid-Congress change in majority status, although it was a change from one party being the majority to no party being the majority, rather than a shift in majority status from one party to the other party, as in the Jeffords case. Although we see this case as being potentially quite interesting, we ignore it here for a variety of reasons, not the least of which is the dearth of stock data from that period.

[2] The Republicans were the majority party when the Senate was divided 50-50, since the Republican Vice President, Dick Cheney, held the tie-breaking vote.

majority party control had significant consequences. Our approach is to examine whether the switch significantly affected the policy benefits that constituents of each party expected to get from the legislative process. More specifically, we use a methodology, called an "event study," that is common in studies of economics, finance, and law, but is rarely used in political science (exceptions include Gilligan and Krehbiel 1988; Gilligan, Marshall, and Weingast 1990; Roberts 1990a, 1990b; Schnietz 2003). Using this method, we look at the effect of the Jeffords switch on the asset values of Republican and Democratic "constituent firms."

An event study examines the effect of an event on the values of relevant market assets, such as stocks, and determines whether the event had a statistically significant impact on the prices of the given assets. For instance, event studies have been used to examine the effects of Hurricane Andrew on insurance company stock prices (Lamb 1995), and the effects of unexpectedly positive or negative earnings announcements on firms' share prices (MacKinlay 1997).

The Jeffords switch is a prime candidate for this methodology. If majority status does in fact matter, then we should see significant changes in the stock prices of firms whose interests are likely to be better served by one party or the other; if majority status does not matter, then there should be no difference in share prices before and after the switch, since the preferences of the Senate, House, and president remained constant across this period.

We examine the effects of the switch on asset prices of firms in the energy industry. Prior to the switch, the Republican Congress and administration were working on an energy bill that was widely expected to bolster the oil industry. We find that the

share prices of oil firms fell significantly in response to news of the Jeffords switch, while share prices of firms involved in environmentally-friendly forms of energy production rose significantly. This pattern is consistent with the predictions of partisan theories of congressional organization, and inconsistent with theories centered on the preferences of individual legislators.

We proceed as follows. In section two, we discuss how we apply partisan and preference-based theories to the Jeffords case. In section three, we derive testable hypotheses regarding the effect of the switch on stock prices that is predicted by each of the theories. We then discuss the event study methodology in greater detail in section four, where we also specify the test that we use to evaluate the competing hypotheses and describe the exact details of our test. In section five, we present our results. In section six, we discuss the significance of the results, as well as potential critiques of our analysis.

The role of majority status in theories of congressional organization

Debate about the extent to which parties are analytically useful turns largely on whether the majority party is able to systematically bias legislative behavior away from the behavior that would occur in the absence of party influence. Partisan theories generally argue that the majority biases outcomes through some combination of party discipline on roll call votes, and manipulation of legislative institutions. We focus on majority party manipulation of the legislative agenda. In other words, rather than looking at whether the majority party affects outcomes by controlling member votes, we examine whether the majority influences outcomes by controlling which bills and motions are voted upon.

In order to use the Jeffords switch as a test, we need to specify some type of behavioral bias that is predicted by partisan models and not predicted by non-partisan models. In other words, we need to be clear about how we will recognize party effects if we see them, and how we will recognize that they are absent if we do not see them. We therefore focus on variants of partisan and non-partisan theories that strongly state the cases for and against parties, respectively, and that also make clear, falsifiable, and contradictory predictions that can be tested in the Jeffords context. On the partisan side, we rely on the procedural cartel model of majority party agenda control (Cox and McCubbins 2002, 2004; this model is applied to the Senate in Campbell, Cox, and McCubbins 2002); on the non-partisan side, we use the pivotal politics model (Krehbiel 1998).

Each of these models is a standard unidimensional spatial model of a legislature. Each is characterized, moreover, by an interval in which status quos are "protected"—that is, no bill that proposes to amend a status quo in that interval will pass the legislature. However, the protected intervals (as well as the reasons they are protected) differ between the two models.

In the cartel model, the majority party controls which bills do and do not get final passage votes. This gives them *negative agenda control*—that is, the ability to block consideration of bills.[3] It uses this power to block consideration of bills that would

[3] It may strike some readers as odd that we focus only on the majority's ability to *block* bills, rather than on its ability to *pass* bills. This is especially likely if the reader interprets the partisan cartel theory as saying that majority party leaders are able to push through new policies at will. We believe, however, that extant partisan theories make no such

produce new policies that are dispreferred to the status quo by a majority of majority party legislators.[4] More formally, the model assumes that the majority median M_j (or

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claim. By contrast, the ability to push through new policies is seen as a conditional function of the degree of preference homogeneity among majority party members (Aldrich and Rohde 1998, 2001; Cox and McCubbins 1993, 2002; Rohde 1991). Cox and McCubbins *do* claim, however, that the dominant function of the majority cartel is "preserving vetoes over policy change" (2002, 140), and that "negative agenda control…is an *unconditional* power of the majority" that does not vary with preference homogeneity (144; emphasis in original).

[4] The claim that the majority party exercises negative agenda control in the Senate flies in the face of conventional wisdom regarding Senate procedure, which holds that the Senate's open amendment procedures and lack of germaneness restrictions preclude negative agenda control. However, support for the claim of negative agenda control can also be found in the literature. For instance, the majority leader sometimes uses the right of first recognition to "fill the amendment tree" (i.e., monopolize the finite opportunities for offering amendments), thereby precluding the offering of unwanted amendments (Oleszek 2004, 232); in addition, the majority party maintains high voting cohesion on motions to table, which are sometimes used to kill unwanted amendments (see Tiefer 1989, 658-671, for a detailed account of the motion to table). We hasten to add that our purpose is to *test* the competing models, rather than to prove the veracity of the assumptions that go into each model. We wish only to claim that the assumptions on both sides are plausible enough that we should not reject either model out of hand.

party leaders acting in the interests of M_j) decides whether to allow consideration of any bills dealing with the given dimension j. If consideration of a bill dealing with dimension j is allowed, the bill is considered under an open rule and passes at the ideal point of the floor median F_j. As shown in Figure 1, M_j therefore blocks consideration of any bills that propose to amend the status quo SQ_j, if SQ_j is in the "majority blockout zone" between $2M_j$-F_j and F_j. If SQ_j is outside the majority blockout zone, however, policy on dimension j will be moved to F_j.

Figure 1 here

In the pivot model, by contrast, protected status quos are those that fall in the "gridlock zone" between the left pivot L_j and the right pivot R_j. These pivots reflect supermajority requirements embedded in the legislative process by cloture and veto override procedures, and are determined *solely* by the preferences of members of

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A related question is, even if one buys into the possibility of majority negative agenda control in the Senate, did the "power-sharing" arrangement of the pre-Jeffords 107th Senate prevent the Republican majority from exercising negative agenda control? This arrangement included 50-50 splits of committee slots (though all chairs went to Republicans), and also gave the minority leader the ability to bring bills to the floor. It *did not*, however, eliminate the majority leader's right of first recognition, nor the ability to use motions to table. It is therefore procedurally plausible that the Republicans maintained the ability to block passage of bills that it disliked. In any case, we believe this is not a serious problem for us, since weaker majority influence would merely bias our test against finding the majority effects that we find. In other words, if anything, the power-sharing arrangement means that we have an even tougher test of partisan theory.

Congress and the president. If SQ_j falls outside the gridlock zone, a bill will pass that moves policy on dimension *j* to within the gridlock zone; if SQ_j falls inside the gridlock zone, then no new policy will be adopted on dimension *j*.

The two models therefore make divergent predictions about which status quos are and are not protected. Specifically (and dropping the subscripts for simplicity), there are two regions of disagreement: first, and most importantly for our purposes, the cartel model predicts that status quos between *2M-F* and *L* are protected, whereas the pivot model predicts that they are not protected. Second, the pivot model predicts that status quos between *F* and *R* are protected, whereas the cartel model predicts they are not.

Figure 2 here

Now consider the implications of the Jeffords switch. To this point, we have represented the majority party as a generic left-of-center party. In Figure 2, we show the majority blockout zones under Democratic and Republican majorities (where *Dem* and *Rep* are the respective party medians), as well as the gridlock zone. The cartel model implies that status quos in the interval (*2Dem-F*) were *not* protected by the pre-switch Republican majority, and *became* protected under the post-switch Democratic majority. The pivot model, on the other hand, implies that there was no change in the set of protected status quo policies when Jeffords switched: since there was no change in House or Senate membership, preferences, pivots, and the gridlock zone did not change.

Asset prices and hypotheses

Returning now to the subject of the value of majority status to constituents, we can recast the preceding discussion in terms of predictions about asset prices. In this and subsequent sections, we assume that markets react rationally to new information. In

addition, we assume that the possibility of Jeffords switching parties was unforeseen until a few days before he announced his decision; that is, we assume that the switch *was* new information that became available in the days leading up to his switch. Finally, we assume that some firms are Republican constituent firms, and that other firms are Democratic constituent firms. By this, we mean that some firms stand to do much better under the policies espoused by one party than they would under the policies espoused by the other party. Note that we *are not* assuming that all firms fall into one of these categories. Finally, we assume that firms' business fortunes are sometimes affected by legislative decisions on dimension *j* and that the expected business success of any such firm is in part a function of the location of policy on dimension *j*. Given these assumptions, and assuming a status quo on dimension *j* that is favorable to Democratic firms, we can draw opposing and testable predictions about the effect of Jeffords's switch on asset prices of Republican and Democratic firms. Note that the pivot hypotheses serve as the null hypotheses for the cartel hypotheses, and vice versa.

> ***Cartel Hypothesis****: Jeffords's switch will have a positive impact on the stock prices of Democratic firms and a negative impact on the stock prices of Republican firms, all else constant.*

> ***Pivot Hypothesis****: Jeffords's switch will have no impact on the stock prices of either Democratic or Republican firms, all else constant.*

In short, the cartel model predicts that any Democrat-friendly status quos that the Republican majorities had not changed as of the Jeffords switch—but which the markets expected to be changed—suddenly became protected when the Democrats assumed majority status. The rational reaction was therefore to place a higher value on stocks of firms that were expected to be hurt by Republican policy changes prior to the switch, but were no longer expected to be hurt once the Democrats gained a veto. Similarly, the rational reaction was to place lower values on stocks of firms that were expected to benefit from Republican policy changes prior to the switch, but were no longer expected to benefit after the switch.

An event study test of the hypotheses

To test these hypotheses, we use an event study research design. Despite their prominence in finance and economics journals (see MacKinlay 1997 for a recent review), there are few examples of event studies in political science. Accordingly, we begin this section by discussing the details of the methodology. We then discuss methods and issues involved in choosing the set of firms whose stock prices we use for our test.

Event study methodology

The dependent variable in an event study is the (rate of) *return* for a given stock or set of stocks. The return is the change in the total value of a security, or portfolio of securities, over some period of time (which, in the case of most event studies, is one day). This rate is expressed as a percentage change from the value at the beginning of the time

period.[5] So, for example, if a stock is worth $100 on day *t*-1, and is worth $101 on day *t*, then the rate of return for day *t* is .01. By contrast, if the same stock is worth $99 on day *t*, the rate of return for day *t* is -.01. It is important to note that this measure captures only the one-day change and does not aggregate long-term changes. To fully appreciate what this means for event studies, consider an example in which a stock's value is constant for five days, increases 100% on the sixth day, and then remains constant for another five days. Although the stock's value increased by 100% across the time period, the event study dependent variable—the one-day rate of return—is zero for all days except the sixth day. Once one understands this, the basic idea of an event study is straightforward; the methodology amounts to asking if the rate of return is significantly different during the period when news of a given event becomes public.

The actual econometrics used to conduct event studies take different forms in different event studies, due largely to diverging ideas and issues regarding how best to identify "significantly different" rates of return. The basic idea in all event studies, however, is that there is a *normal return* for each day—that is, the return that would obtain on that day in the absence of any significant event effects—and also an *abnormal return*—which is the difference between the normal return and the actual return for that day. The critical tests in event studies amount to determining whether the abnormal return

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[5] More technically, the rate of return is, $\widetilde{R}_{it} = \frac{p(t)\cdot f(t)+d(t)}{p(t-1)} - 1$, where $p(t)$ is the last sale price at the end of day t, $f(t)$ is the factor to adjust the price at t (so that the current and previous price are adjusted to account for any "splits," increases in the number of outstanding shares with proportional equity maintained among shareholders), $d(t)$ is the dividend amount, $p(t\text{-}1)$ is the sale price of the security at the end of the day before t.

is significantly different from zero on the day of the event—or in a range of days around the event if one thinks that the dissemination and impact of new information did not occur entirely in the 24 hours between the close of trading on the day before the event and the close of trading on the day of the event. The range of days in which one looks for an event's impact on stock prices is called the *event window*.

The normal return for each day in the event window is estimated by modeling returns of the given stock (or portfolio) across a set of days *outside* the event window, and then using this model to forecast the normal return for each day *in* the event window. The range of days used to generate this forecast is called the *estimation window*. The estimation window frequently consists of 100-200 days leading up to the event window. Depending upon the specific econometric method employed to test for significance, however, the estimation window may also include a range of days that follow the event (as is the case in our study).

Modeling and forecasting of normal returns can be done in various ways. The prevalent method in finance and economics event studies is to control for broad changes in the market when calculating normal returns, thereby accounting for possible confounding effects of events that affect the market as a whole. Such "market models" involve regressing a stock's daily return on the daily return of a broad market index, across all days in the estimation window. The resulting estimated coefficients are then combined with the observed market rate of return for each day in the event window to predict the normal return for each event window day. Although such market models are not the most sophisticated option for calculating normal returns, the conclusion found in studies of various techniques for forecasting normal returns is that market models

perform *at least as well as* more sophisticated models (MacKinlay 1997). McWilliams and Siegel (1997, 629) conclude that the market model is "simply the best available model at this time."

In addition to varying in their method for forecasting normal returns, event studies vary along another dimension. This second dimension, which is orthogonal to the choice of model for forecasting normal returns, consists of the exact econometric methodology used to determine whether the timing of a given event is associated with significant abnormal returns.[6]

Until now, we have discussed event studies largely in terms of a single stock. In practice, however, an event study is almost always conducted upon a group or class of stocks that is of theoretical interest. To test for significant abnormal returns across a sample of stocks, we therefore employ a time-series-cross-section, generalized least squares (GLS) regression in which the cross-sectional unit is an individual firm's stock and the time series is each day in the estimation and event windows (Schipper and Thompson 1983; see also Angbazo and Narayanan 1996; Malatesta 1986; McWilliams and Siegel 1997). An important advantage of this method is that it explicitly takes into account the non-independence and cross-sectional correlation of abnormal returns that accompany a contemporaneous event such as Jeffords's switch. In addition, it makes efficient use of data, is well suited to small sample sizes, and allows for more powerful hypothesis testing (i.e., joint hypotheses and tests about average and cumulative abnormal

[6] For convenience, since market-model forecasting is typically used and is what we employ, the rest of our discussion assumes market-model forecasting.

returns).[7] We estimate the model separately for Republican and Democratic firms, since the cartel hypothesis predicts the event will have opposite effects for each group.

The GLS regression model is

$$\widetilde{R}_{it} = \beta_{i0} + \beta_{im}\widetilde{R}_{mt} + \beta_{it}D_{it} + \widetilde{\varepsilon}_{it} \qquad (1)$$

where $\widetilde{R}_{it}$ is the rate of return for firm i on day t (i = 1, 2,…, N);

$\widetilde{R}_{mt}$ is the rate of return for the market index on day t;[8]

D_{it} is a dummy variable equal to one on the day(s) of the event, and zero otherwise; and

$\widetilde{\varepsilon}_{it}$ is an error term (assumed to be normally distributed and serially independent) for firm i on day t.

Note that the constant term β_{i0} and the market index term $\beta_{im}\widetilde{R}_{it}$ jointly constitute the market model, and estimate the normal return. The firm-event dummy term $\beta_{it}D_{it}$ then captures any abnormal return for each firm i on the day(s) of the event, which is interpreted as the impact of the event on i's rate of return.

With this specification, the appropriate test of the sample-wide effect of an event is to test whether the summed β_{it}'s, $\sum_{i=1}^{N}\beta_{it}$, are significant in the predicted direction.[9] Thus, the hypotheses that we test are that the summed effect of the Jeffords switch was

[7] For details of other significance tests, and the pros and cons of each, see Ball and Brown (1968); Brown and Warner (1985); Schwert (1981).

[8] For our analysis, we used the CRSP NYSE-AMEX value-weighted index.

[9] To test the significance of this term, we use a linear combination test.

significantly less than zero for Republican firms, and significantly more than zero for Democratic firms.

The underlying research design of event studies

The difficulty of generating quasi-experimental research designs from which valid causal inferences can be drawn is a fundamental problem facing much of political science. The high degree of internal validity of event studies is therefore one of their most desirable and appealing qualities.

A key to this research design is "the fact that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices" (MacKinlay 1997, 13). That is, event studies assume that rational investors, operating in efficient markets, will accurately derive the economic impact of new information on the long-run profitability of firms and adjust their stock price bids up or down accordingly (Schnietz 2003). Thus, when a surprise occurs, the resulting change in asset prices can be attributed to new, unanticipated information. In an event study, the time between pre-test (pre-event stock price), treatment (event), and post-test observation (post-event stock price) is a matter of minutes, hours, or days. This short time horizon decreases the possibility that an observed significant abnormal return is caused by some confounding factor other than the event under study. It also allows the researcher to conduct a detailed search for possible confounding factors at the time of the event. In the Jeffords case, an event study allows us to capture the impact of the switch immediately, despite the fact that the actual policy impact may not have materialized for some time after.

In conducting an event study, however, a researcher must consider several potential pitfalls, which we address here. First, it must be safe to assume that the policy

impact expected by market investors is a reliable measure of actual policy impact. We argue that it is. With billions of dollars at stake, market traders have incentive to be both attentive and well informed. Certainly, we would not want to draw an inference from the actions of a single market trader; but in the aggregate, investor evaluations of policy impact, measured by changes in stock prices, tend to be accurate (c.f., Gilligan and Krehbiel 1988; Schwert 1981).

Second, even if we believe that markets are efficient, the event under study needs to have been *unanticipated* by investors in order for the event study method to capture the event's impact. As McWilliams and Siegel (1997) warn, failing to find that an event affects stock prices may reflect a lack of surprise, rather than a lack of effect. Put another way, a researcher who finds that an event had the hypothesized effect can be confident both that the event had an effect and that the event was a surprise (at least to some extent). A researcher who finds no effect can conclude that one or both of these conditions was not met.

Because of this potential pitfall, we have taken pains to be sure that Jeffords's switch was not anticipated prior to a few days before the switch, when speculation about a potential switch became front-page news. We reviewed major newspapers from January 1st to May 24th of 2001, looking for signs that anyone expected Jeffords to switch parties. Though his relationship with fellow Republicans was clearly strained in the months before his switch, his decision was very much a surprise. Our search reveals no hint, prior to the week of the switch, that he was about to jump ship.[10] This is consistent with the

[10] We conducted our search using *LexisNexis*. We searched for the word "Jeffords" in the "full text" of the "general news" category, searching only "major newspapers." This

account of Senate Democratic leader Tom Daschle (2003), who indicates that the first media report of rumors that Jeffords would leave the Republicans occurred on May 18th.

Third, McWilliams and Siegel (1997, 636) suggest that the size of the event window (recall that this is the range of days allotted as the event, or "treatment," period) "is possibly the most crucial research design issue." Ideally, the event window should begin when news of the event first makes its way into the market, and should end when the news has been fully incorporated into stock prices. In the next subsection, we will detail our event window and how we determined which days to include.

Finally, as noted, even with a relatively short event window, one must be concerned about confounding events. If such events exist, we cannot draw causal inferences about either event's impact.[11] Note, however, that for a potentially confounding event to interfere with the inferences drawn from an event study, that other event must occur at the same time as the "treatment" event. In addition, it must plausibly affect the returns of sample stocks in the same way that the event under study affects them. The event study controls for overall market movements; thus, for a potential confounding event to cause inferential problems, it is not sufficient that the event could plausibly have affected the market as a whole in the same direction that the treatment

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generated 425 hits (many of which were repeat stories published in different newspapers). We then read through each, looking for any mention of the possibility that Senator Jeffords might switch parties, and found no such speculation.

[11] Significant events that occur during the estimation window introduce no expected bias to event study results, although such events may inflate standard errors and thereby increase the possibility of Type II error.

event affects sample stocks. The confounding event must be able to plausibly explain *abnormal returns*—that is, those not explained by broad market movements—to pose a problem.

Operationalizing our hypotheses

In this section, we explain the details of our analysis, beginning with our choice of a policy issue, and moving on to our method of stock selection and our choice of an event window.

Choosing a policy issue. Our first step in constructing a test of our hypotheses is to identify at least one policy dimension on which the ex ante (i.e., pre-switch) status quo was favorable to Democratic constituent firms. Ideally, we would also like to be able to demonstrate that the Republican majority intended to amend this status quo in a way that would move policy rightward. We began our search for such dimensions by combing through the Republican party platform from the 2000 election, as well as the president's address to Congress in which he spelled out his policy goals. We identified a number of major policy goals that were repeatedly mentioned, such as a tax cut, increased defense spending, increased oil production, privatized education, and tort reform. Some of these issues, such as the tax cut, were not suitable for our analysis because Republicans had already enacted new legislation (i.e., changed the status quo) by the time of the Jeffords switch.

Another characteristic that a policy dimension must feature in order to be included in our study is that there must be publicly traded firms whose stock prices are affected by policy on that dimension. This requirement narrowed our field of candidate dimensions sharply, since many of the Democratic constituents likely to be hurt by proposed

Republican legislation were labor unions, public schools, and trial lawyers—all of which do not offer publicly traded stocks.

Eventually, we identified energy policy as the issue dimension that most clearly fits the conditions for testing our hypotheses. One of the most controversial and well-publicized goals of the unified Republican government that emerged from the 2000 election was the opening of the Arctic Wildlife Refuge for oil production. In fact, this was the symbolic tip of the iceberg. In the months preceding Jeffords's switch, a much-ballyhooed Republican energy bill was working its way through Congress. Among other things, the bill emphasized expansion of oil and gas production. In fact, it was seen as so generous to Republican-friendly oil and gas firms that one journalist remarked that, "when [oil and gas lobbyists] got to Congress on Tuesday, there was little they were asking for that President Bush hadn't already offered them" (Soraghan 2001). On the other hand, under the Bush energy plan, "…[Democrat-favored] programs encouraging conservation and energy efficiency would lose significant funding, as would research into emerging technologies to produce energy from non-polluting, renewable sources, such as wind, solar and geothermal" (Cooper 2001).

Two passages from Senate Democratic Leader Tom Daschle's account of events in the 107th Congress underscore the parties' divergent views on energy policy. In the first, he describes his initial meeting with then-president elect George Bush, in January 2001:

> We went on to talk, in a very general way, about several issues, including the subject of alternative energy, which touched off a trigger for him.

> ‘You know, I’ve been around this business a long time,’ he said, referring to the oil industry. ‘I know how some feel about alternative energy, and I respect their opinions. But I have to tell you, alternative energy is something long into the future. There’s nothing we can do with it that helps us much now.’
>
> ‘People have got to understand that energy independence means more oil,’ he said. ‘And that means we’ve got to drill.’
>
> I wouldn’t say Bush’s attitude was outright confrontational, but it was a lot more edgy, a lot more adamant, than I had expected. (53)

In the second passage, as part of a discussion of Senate Democrats’ core agenda, Daschle states that the agenda included “an energy package based much more on conservation, efficiency, and alternative fuels than the President’s oil-centric approach” (92).

In addition to the status quo being friendly to Democratic firms and being expected to change dramatically, this is an issue dimension on which we can identify publicly traded firms that expected to be helped or hurt by the energy bill. On the one hand, oil and gas companies were expected to reap a windfall; on the other hand, companies involved in more environmentally-friendly tasks, such as producing clean energy or environmental cleanup, were set to see their fortunes decline. We therefore use energy company stocks for our analysis.

Stock selection. There are a number of ways that we might choose a sample of oil and gas firms to include in our analysis. At one extreme, we could include every publicly traded firm in these businesses. A problem with this approach, however, is that it is unlikely that all oil and gas firms have the same stakes in the political process, since not

all are involved in aspects of production that would have benefited from the Republican energy bill. Accordingly, we adopt a method that will increase the signal of our test, by using stocks of firms that showed, via campaign contributions, that they had a stake in the political process. To identify such firms, we first compiled a list of all publicly traded oil and gas firms that, during the 1999-2000 election period, were associated with a corporate PAC and donated money to a candidate for federal office.[12] We then excluded firms that had more than two consecutive days of missing data in the Center for Research in Securities Prices (CRSP) database during our time series.[13] This left us with 45 stocks, including most of the largest oil companies (see the appendix for a full list).

Ideally, we would have selected our renewable energy stocks in identical fashion. Unfortunately, this would have left us with a sample size of zero, since there were no renewable energy corporate PACs that contributed money during the 1999-2000 election cycle. Instead, we make due with the potentially noisy signal emanating from a broad sample of publicly traded renewable energy companies.[14] After again excluding firms

[12]We used data from http://www.opensecrets.com to identify oil and gas corporate PACs.

[13] For stocks with only one or two days of missing data, following common practice, we replaced the missing value with a zero (Heinkel and Kraus 1988). That is, for days for which data is missing, we assume that the given stock's price for that day was the same as the price on the previous day.

[14] The list of publicly traded renewable energy companies was taken from http://energy.sourceguide.com, with one exception. We added Ballard Power Systems, which was not on the list, but is widely known to be one of the top renewable energy companies.

with more than two consecutive days of missing data, we were left with 21 firms, including wind, hydrogen, and hydroelectric energy producers (again, see the appendix for a full list).

Defining the event window. Recall that, when defining an event window, we ideally want it to begin as soon as news of the event of interest makes its way into the market, and to end as soon as news of the event has been fully incorporated. Obviously, we do not know with certainty exactly when either of these things occurs. We therefore take some care in trying to identify the dates on which these things happened.

In doing so, we rely heavily on Daschle's (2003, 58-72) behind-the-scenes account of events surrounding Jeffords's switch; we supplemented this account with our own research. Daschle's account is as follows: Jeffords made the decision to jump ship at a secret meeting with Daschle and the Senate Democrats' assistant leader, Harry Reid, on Tuesday, May 15th. By late in the day on Friday, May 18th, CNN reported a rumor that Jeffords would defect (Daschle 2003).[15] By Monday, May 21st, the rumor was spreading more broadly. This is consistent with the results of our *LexisNexis* search, which indicated that the rumor was first widely reported in newspapers on Tuesday, May 22nd. We therefore use May 21st as the first day in our event window (that is, the first day on which we might see a market response to the rumor).

On the evening of Monday, May 21st, Jeffords told fellow Senate Republican Olympia Snowe that he was seriously considering bolting from the party. Snowe notified the White House, and on both Tuesday, May 22nd, and Wednesday, May 23rd, Jeffords

[15] Note that this report would have occurred after markets closed on the 18th, and that markets did not reopen until the following Monday, the 21st.

came under intense pressure from Republicans seeking to prevent the defection. By this time, Daschle seriously doubted that Jeffords would withstand the pressure and go through with the switch. By the evening of May 23rd, according to Daschle, everyone knew Jeffords would announce which way he was going at a Vermont news conference the next day; but, writes Daschle, "it was by no means clear to any of us, on either side, what Jim's final decision would be" (71). On the morning of May 24th, Jeffords called Daschle and told him that he was going to stick to their deal; he then announced on national television that he would henceforth "caucus with the Democrats for organizational purposes" (72).

Thus, our event window is bounded by the day the markets could have reacted to the first known media report (May 21st) and the day that Jeffords announced his decision to switch (May 24th). We emphasize that, like most event studies, we *do not* have a model of how information was disseminated or incorporated by investors *during* our event window. Even the earliest speculation about Jeffords switching may have caused some investors to increase their estimates of the probability of him switching from (approximately) zero to decidedly more than zero, which may have been enough to cause them to react. Similarly, by May 24th, it may have been the case that investors had already incorporated the information because of rumors, so it is possible that any effect on asset prices occurred entirely prior to the formal announcement. On the other hand, it is also plausible that many investors' estimates of the probability of a switch remained relatively low until the formal announcement on May 24th. The actual announcement may therefore have still constituted a sizable "surprise" in the sense that it may still have conveyed significant new information that affected investor behavior.

Lacking any *a priori* basis for predicting when in the event window the impact of the event should have been strongest, we code the dummy variables that operationalize this window in two different ways. The first method is to use separate dummies for each of the days in the window (i.e., May 21st, 22nd, 23rd, and 24th), thereby treating each day as a separate event. This fine-grained approach allows us to detect significant effects on any of the days. The alternative approach is to use a single dummy that is coded one for all days in the window, thereby treating the days as a joint event.[16] The estimation window that we use in our analysis is the set of all 174 trading days between January 1st and September 10th, 2001.

Finally, to account for the possibility of confounding events, we searched online sources of financial news (using the *LexisNexis* "keyword" option) for industry events affecting oil, gas, or renewable energy stocks during our event window. We found no evidence of contemporaneous events affecting either set of stocks on any of these days.[17]

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[16] This joint approach has the drawback of being more prone to Type II error—that is, rejecting a relationship that does in fact exist.

[17] There was a noteworthy, and conceivably confounding, event that occurred at the same time as Jeffords's switch. This event was the passage of the high-profile tax bill that implemented President Bush's showcase policy of income tax cuts. For this to be a confounding factor that predicts the same results as the cartel model, however, the tax bill would not only have to affect energy stocks above and beyond its effects on the market as a whole (for which the event study controls), but would also have to affect oil and gas stocks significantly more *negatively* than the rest of the market while simultaneously affecting alternative energy stocks significantly more *positively* than the rest of the

The effects of the switch on stock prices

Results

Table 1 presents the results of our tests for both the oil and gas estimation and the renewable energy estimation. The first column of results shows the estimated impact of the switch on oil and gas firms' stock prices, and the second column of results shows the effect on renewable energy firms' stock prices. The first three rows show the estimated effect of the event for each individual day in the event window, and the fourth row shows the joint effect for the four-day window. First, consider the oil and gas stocks. For May 21st, the first trading day after rumors began spreading, there was no significant change in abnormal returns for oil and gas stocks. For May 22nd, however, which was the first day that the possibility of a Jeffords switch was widely reported in newspapers, the abnormal return is negative and highly significant (with a p-value of .004). This is consistent with the notion that investors quickly made the connection between the increased probability of a Democratic Senate (based on rumors that Jeffords would switch) and the likely impact on the long-term valuation of firms in the oil and gas industry.

Table 1 here

For May 23rd and May 24th, as rumors that Jeffords's switch became more widespread and Jeffords announced his decision, it appears that investors continued to dump oil and gas stocks. Though we cannot quite reject the null hypothesis of no effect at

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market. In our search of energy-related articles, we found no suggestion that the tax bill was expected to affect energy stocks, let alone in the divergent directions predicted by the cartel model.

the 95% confidence level, the coefficients for both days are negative and significant at over 93% (with p-values of .063 and .062, respectively). Finally, as shown in the bottom cell of the oil and gas column of Table 1, this overall negative trend is also captured by the dummy variable when we test the effect of the four days jointly. In this joint analysis, the coefficient is again negative and highly significant (with a p-value of .002). We can again reject the null hypothesis of no effect, in favor of the alternative hypothesis that oil and gas stock prices declined significantly over that period.[18]

We turn now to the results for renewable energy stocks over the same period. For these stocks, when we use separate dummy variables for each event window day, the coefficients for May 21st, May 22nd, and May 23rd are not significant; we therefore cannot reject the null of Jeffords having no effect for those days. The coefficient for May 24th, however, is positive and significant (with a p-value of .002); that is, for the day that Jeffords announced his switch, we can reject the null hypothesis of no effect, in favor of the alternative hypothesis that the abnormal returns for renewable energy stocks were positive and significant. In the joint analysis of the four-day event window (shown in the bottom-right cell of Table 1), however, we are unable to reject the null hypothesis that

[18] As a robustness check, we ran an identical analysis on a sample of defense stocks. The sample was chosen in the same way that we choose our sample of oil and gas stocks. The results of this analysis were substantively the same as the results presented in table 1 for our sample of oil and gas stocks. That is, defense stocks saw significant, negative returns as a result of the Jeffords switch.

Jeffords's switch had no effect.[19] This is not terribly surprising—and, we argue, not terribly problematic for our conclusions. As we discussed previously, the small size of the sample of renewable energy stocks, the noisy method by which we were forced to choose this sample, and the lower *ceteris paribus* likelihood of finding significant results when using a joint test, all increase the risk of Type II error in our analysis of renewable stocks.

Accounts by market observers corroborate the claim that the "rally" in renewable energy on May 24th, which we pick up in our day-by-day analysis, was a reaction to Jeffords's switch.[20] Moreover, along with news of the switch, media reports on May 24th began to note that Senator Jeff Bingaman (D-NM), a supporter of alternative energy, would become the new Chair of the Senate Energy Committee.

Discussion

In this section, we first draw out the implications of our findings for the cartel and pivot models. We then anticipate three potential criticisms of our analysis, and discuss the degree to which we believe each is or is not problematic for our conclusions.

Implications of changes in energy stock prices

The pattern of investor reactions to the Jeffords switch indicates that the change from Republican to Democratic control of the Senate significantly affected expectations

[19] We used a sign test (McWilliams and Siegel 1997) to verify that our results are not driven by outliers.

[20] CNN Financial News, "Energy Sector Analyzed," 24 May 2001; Mark Gangloff, CNN Money, "Jeffords' Economic Impact," 24 May 2001.

about the future shape of energy policy. Even controlling for the general trend of the market, which tends to take a hit when Republicans lose office (see Herron et al. 1999 for a review), oil and gas stocks had significant negative abnormal returns in reaction to the Jeffords switch. Conversely, the returns of renewable energy stocks rose well above the level predicted by the market model, yielding significant positive abnormal returns on the day that Jeffords announced his switch. In terms of real dollars and asset values, the aggregate impact of Jeffords's switch was enormous. From May 21st to May 24th, the 45 oil and gas companies in our sample lost a total of *$12.4 billion* in value; the 21 renewable energy companies, meanwhile, gained $600 million in value on May 24th.[21] For each set of stocks, the change represented over two percent of market capitalization.

These findings lend support to partisan theories of congressional organization. Because the membership and preferences of the Senate remained constant across the period we examine, we can be confident that the change in majority status is responsible for the observed patterns of change in the stock prices of Democratic and Republican constituent firms.

We cannot, however, reconcile this pattern with theories that ignore the influence of parties in the legislative process. According to the pivot model (Krehbiel 1998), the set of bills that was expected to pass (and the set that was expected not to pass) should have remained constant during the period spanning Jeffords's switch, and thus we should not have observed any change in investor behavior. However, we can reject the hypothesis

[21] These numbers were calculated as the change from the end of trading on the first day listed to the end of trading on the last day listed, using price*shares-outstanding to calculate market capitalization.

that the value of Republican and Democratic constituent firms remained constant over this period. Moreover, they changed in ways predicted by the partisan cartel model (Cox and McCubbins 2002, 2004).

Potential problems with our analysis

To believe the conclusions drawn from an event study, the reader must believe the efficient markets hypothesis. Efficiency requires that investors make good predictions regarding the direction and magnitude of policy change. These predictions need not be perfect; rather, they need only be unbiased. Given the financial incentives of investors, this seems a reasonable assumption.

To the extent that the efficient markets hypothesis holds in the case of the Jeffords switch, our event study constitutes a test of the cartel and pivot models. To the extent that it does not hold, however, we merely test investors' best guesses about whether majority status matters. In drawing the conclusion that majority status matters, we follow event study convention by assuming that markets acted efficiently in our case. In most of our discussion of the implications of our findings, we therefore leave this assumption implicit and treat our analysis as a test of the legislative theories in question. At this point, however, we explicitly add the important caveat that, to the extent that the reader is skeptical about market efficiency in this instance, our conclusions should be taken with a grain of salt.[22]

[22] One might be tempted to view the subsequent history of energy policy—and the fact that the unified Republican government of the 108th Congress has not yet passed an energy bill—as evidence that investors did indeed "get it wrong." The political climate of the 108th Congress, however, differs radically from that of the period we analyze.

The second potential critique that we address is the possibility that the observed changes in energy stock prices may have been a response to changes in committee chairs rather than to the change in majority party. In other words, we may be demonstrating effects predicted by distributive models, and conflating them with partisan effects.

We believe that this critique is somewhat misleading, since proponents of both partisan and distributive theories acknowledge that the models are not mutually exclusive. On the partisan side, committee chairs are seen as part of the majority cartel, which delegates some authority to committee chairs, just as it delegates other authority to party leaders (Cox and McCubbins 1993; Kiewiet and McCubbins 1991). As with any agency relationship, committee chairs are not perfect agents, and exercise some level of discretion within their committee's jurisdiction. Thus, a change in committee chairs might affect expected policy—and investor behavior—yet still be wholly consistent with the partisan model. Similarly, writing from the distributive perspective, Shepsle and Weingast (1995, 172-3) write that "…parties as organizing agents in the legislature are entirely compatible with strong committees [that play a distributive role]." Weingast (1994) suggests that distributive theory's relative inattention to parties is a shortcoming

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September 11th, two wars, the continuing costly occupation of Iraq, and a yawning budget deficit have all created circumstances very different from those of May 2001. It is therefore difficult to draw inferences about the "correct" reaction to Jeffords's switch from subsequent energy policy. Indeed, one of the prime advantages of an event study is that it allows us to neatly control for future events that might otherwise obscure an event's impact.

of the theory,[23] and also raises the possibility that distributive universalism holds only *within* the majority party.

When it comes to *explaining* the changes in committee chairs that occurred as part of the re-organization that followed from Jeffords's switch, however, we believe partisan models have the upper hand. Partisan theories neatly explain why *all* Senate committee chairs switched from Republican to Democratic hands at that time. Many early distributive models, which were often intended more as explanations for the apparent lack of observed instability predicted by social-choice theory than as explanations of legislative organization per se, take committees as exogenously given (Shepsle and Weingast 1995); they therefore make no attempts to explain changes in this system, including changes in committee chairs. Weingast and Marshall's (1988) well-known distributive model addresses this issue and endogenizes the choice of committee chairs. Chairs are chosen "…by seniority, that is, the length of continuous service *on the committee*;…rights to committee positions cannot be sold or traded to others" (143; emphasis added). The model therefore precludes the events of May 2001, in which Senator Harry Reid, the Democrat in line to take over as chair of the Environment and Public Works Committee, gave Jeffords the chairmanship of the committee as a form of compensation for Jeffords being removed as chair of the Health, Education, Labor, and Pensions Committee upon his defection from the Republicans.

The final potential critique that we address is the possibility that the whole change in Jeffords's allegiance, as well as in Senate organization, merely reflects a change in

[23] For a distributive model that *includes* a role for parties, see Weingast, Shepsle, and Johnsen 1981.

Jeffords's preferences—and may therefore be consistent with the pivot model. Obviously, we cannot actually observe, or perfectly measure, Jeffords's preferences. but we can estimate them using roll call based measures such as NOMINATE (Poole and Rosenthal 1997) or ADA scores. Using Poole and Rosenthal's W-NOMINATE program,[24] we have estimated W-NOMINATE scores for each Senator in the 107th Congress across the period of our analysis (i.e., using all Senate roll call votes from the beginning of the Congress until September 10th, 2001). We treat pre- and post-switch Jeffords as two different individuals, in order to contrast his pre- and post-switch voting behavior. The result is an estimated pre-switch (first-dimension) ideal point of .14, and a post-switch ideal point of -.095—which is a very small shift in voting behavior. To put this change in perspective, compare it to the ideal points for a few other prominent Senators from across the political spectrum, estimated across the same time period: Wellstone (-.969); Kennedy (-.813); Daschle (-.719); Baucus (-.098); Chafee (.159); Specter (.289); Lugar (.715); Santorum (.825); Helms (1.000).

Moreover, a change in Jeffords's NOMINATE score is consistent with partisan theories—after all, he *publicly announced* that he would change his voting behavior on organizational votes. Trying to interpret the extent to which roll call behavior reflects a legislator's private preferences, as opposed to preferences induced by constituency or party considerations, is notoriously difficult; measures such as NOMINATE inherit this difficulty. It is unsurprising from a partisan viewpoint that Jeffords's voting pattern differed somewhat after the switch.

[24] The W-NOMINATE program is available on Keith Poole's webpage, at http://pooleandrosenthal.com/default.htm.

Even if we take as given that Jeffords's preferences changed, as we implicitly assume by treating him as two different individuals in the NOMINATE analysis just discussed, this would not necessarily allow the pivot model to explain the observed change in investor behavior. In order for Jeffords's changing preferences to allow the pivot model to explain our results, the change would have to move the left pivot far enough to the left that the status quo energy policy, previously outside the gridlock zone, became encompassed by the gridlock zone. Using our estimated W-NOMINATE scores, however, Jeffords goes from being the 50th most conservative Senator to being the 48th most conservative Senator. In other words, he jumps from the conservative side to the liberal side of only two other Senators, and is still well to the right of the left pivot (Evan Bayh, whose ideal point is at -.363). In other words, the left pivot *did not change*, even if we assume that Jeffords's ideal point changed. A change in Jeffords's preferences therefore does not allow the pivot model to explain changes in stock returns.

Conclusion

Our central conclusion is that majority party status in Congress affects policy outputs (or at least expected policy outputs, if one is skeptical of market efficiency) in meaningful ways. In addition, we provide direct evidence that majority status can be valuable to a party's constituents. In the Jeffords case, moreover, the shift in wealth that we observe is a reality that holds *regardless* of market efficiency.

More generally, our results have important implications for theories of congressional organization. The Jeffords switch is the *only* instance in the history of the United States in which majority status changed while member preferences remained constant. It thus constitutes a unique opportunity to compare partisan and non-partisan

theories of congressional organization as though Congress were a controlled laboratory setting. The results are in for this "lab test" on the effect of majority status. Assuming that the market did not make a mistake, the results show that majority status is important.

This finding is also particularly noteworthy given that the test was conducted in the Senate, where parties are often said to have little opportunity for agenda control. Conventional wisdom holds that the Senate is the toughest case for partisan theories of legislative organization, and it seems this would never be truer than under the "power-sharing" arrangement of the early 107th Congress. Indeed, with few exceptions (e.g., Campbell, Cox, and McCubbins 2002; Koger 2003), most evidence of party effects comes from research on the House. Yet, our results suggest that the majority party exercised negative agenda control in this tough case; the results also demonstrate that such negative agenda control can have important consequences.

Appendix A: Companies Included in Samples

Oil and Gas Companies	Renewable Energy Companies
Exxon Mobil Corp.	Ballard Power Systems
Peoples Energy Corp.	Energy Conversion Devices Inc.
Chevron Corp.	Thomas & Betts Corp.
Sunoco Inc.	Honda Motor Ltd.
Unocal Corp.	Spire Corp.
USX Marathon Group	UQM Technologies Inc.
AGL Resources Inc.	Valence Technology Inc
Enron Corp.	Fuelcell Energy Inc.
Synergy Inc.	Exide Corp.
Halliburton Company	Electric Fuel Corp.
Ashland Inc.	Astropower Inc.
Equitable Resources Inc.	Evercel Inc.
TXU Corp	Plug Power Inc.
Oneok Inc.	Energizer Holdings Inc.
National Fuel Gas Co.	Capstone Turbine Corp
Kerr Mcgee Corp.	DCH Technology Inc.
Energen Corp.	Active Power Inc.
Questar Corp.	H Power Corp.
Murphy Oil Corp.	Millennium Cell Inc.
BP Plc.	Proton Energy Systems Inc.
Occidental Petroleum Corp.	Evergreen Solar Inc.
Tesoro Petroleum Corp.	
Williams Cos	
Nisource Inc.	
Apache Corp.	
Nicor Inc.	
Piedmont Natural Gas Inc.	
Dominion Resources Inc.	
Anadarko Petroleum Corp.	
Burlington Resources Inc.	
Cabot Oil & Gas Corp.	
Cross Timbers Royalty Trust	
Ultramar Diamond Shamrock Corp.	
Torch Energy Royalty Trust	
McMoran Exploration Co.	
Valero Energy Corp.	
El Paso Energy Partners LP	
Pennzoil Quaker State Co.	
Devon Energy Corp.	
Tidewater Inc.	
Mitchell Energy & Dev Corp.	
Frontier Oil Corp.	
Northwest Natural Gas Co.	
Southwest Gas Corp.	
Southwestern Energy Co.	

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Table 1. Impact of Jeffords's switch on oil and gas stocks and renewable energy stocks, May 21st to May 24th, 2001

	Oil and gas stocks		Renewable energy stocks	
	Σ Coefficients (Σ SE's)	p-value	Σ Coefficients (Σ SE's)	p-value
May 21st	-.0152 (.1499)	.460	-.3155 (.2674)	.119
May 22nd	-.3940* (.1495)	.004	-.0933 (.2670)	.364
May 23rd	-.2295 (.1500)	.063	-.2844 (.2681)	.145
May 24th	-.2306 (.1495)	.062	.5625* (.2667)	.018
May 21st-24th	-.2207* (.0754)	.002	-.0322 (.1348)	.441

* Significant at 95% or greater level.

All p-values shown are for one-tail tests. Cells contain GLS coefficients and standard errors, summed using linear combination tests across all stocks in the samples. The formula to calculate the standard errors of a linear combination of coefficients is, for example, $\{[se(\beta_{1hat})]^2+[se(\beta_{2hat})]^2+2cov(\beta_{1hat},\beta_{2hat})\}^{1/2}$ (Wooldridge 2003:141). Results for oil and gas are based on a sample of 45 stocks; results for renewable energy are based on a sample of 21 stocks. For each analysis, the estimation window that we use is the set of all 174 trading days between January 1st and September 10th, 2001.

Figure 1. Protected intervals: the majority party blockout zone and the gridlock zone

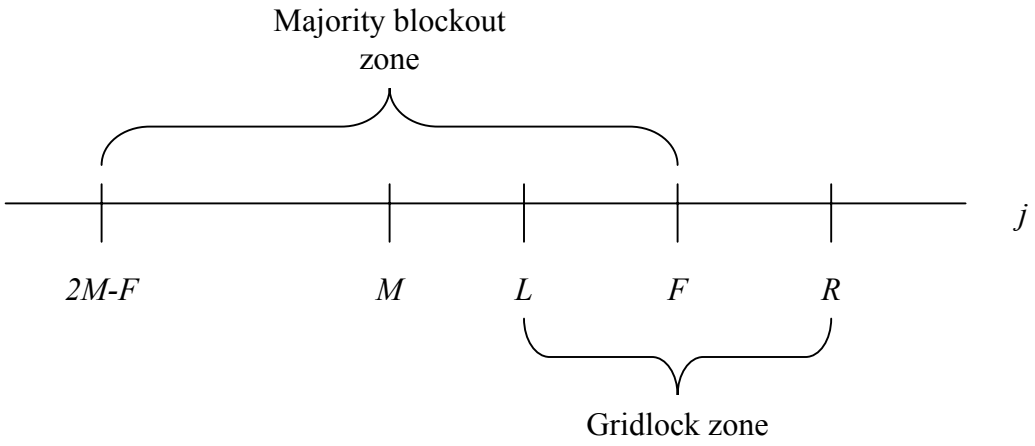

Figure 2. Protected intervals under Democratic and Republican majorities