Determinants and Effects of Corporate Lobbying

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This study examines the determinants of lobbing and whether lobbying affects shareholder wealth. We find that lobbying behavior is related to firm size, investment opportunities, and industry affiliation. Lobbying is unrelated to cash flow, which is inconsistent with lobby spending arising from agency problems, unlike other forms of political spending. Evidence suggests corporate lobbying is lucrative on average. After controlling for factors known to influence firm-value, results indicate the market value contribution of an additional dollar of lobbying is roughly $200.

Keywords: corporate lobbying; political connections; market value

This paper examines the determinants and shareholder wealth effects of corporate lobbying among S&P 500 firms. Lobbying is the attempt to affect legislative policy for the benefit of special interests.[1] Legislative influence via lobbying is achieved through internal (in-house) or external lobbyists, who, in addition to meeting with legislators, provide research and analysis of legislation and regulatory proposals, attend legislative or regulatory hearings, and discuss implications of pending legislation or regulatory proposals with management. Many lobbyists are former political insiders that may provide valuable political connections to their clients.[2]

The Lobbying Disclosure Act of 1995 mandated the public disclosure of lobbying expenditures. The resulting data show that between 1998 and 2006, lobbying expenditures increased from $1.45 billion to $2.6 billion and the number of registered lobbyists grew from 10,693 to 15,247.[3]

We find that corporate lobbying is primarily determined by firm size, investment opportunities, and industry effects. We find no relation between lobbying and cash flow, indicating that lobbying is unrelated to the ability to lobby. Further, an insignificant relation between lobbying and cash flow suggests lobbying is not related to agency problems associated

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[1] The U.S. government defines lobbying as the attempt to persuade legislators to propose, pass, defeat legislation or change existing laws to provide benefits to parties with special interests (www.senate.gov). See http://www.senate.gov/legislative/Lobbying/Lobby_Disclosure_Act/3_Definitions.htm for a full discussion of lobbying activity.

[2] Yu and Yu (2008) state that over half of former congressmen or senators become lobbyists for firms. Although former US government officials are able to become lobbyists, restrictions do exist. Currently, congressmen and executive branch officials must wait one year after leaving office before directly lobbying government officials. A loophole exists in that lobbying firms can retain former officials as consultants or advisors until the end of the moratorium (http://www.opensecrets.org/lobby/lobby00/former.php).

[3] http://www.opensecrets.org/lobby/index.php

with free cash flow (Jensen (1986)). The results are robust to dependent variable and econometric specification, firm-level clustering of standard errors, time and industry effects and various robustness checks.

We also determine the impact of lobbying on firm value, since lobby expenditures represent investments in political capital. We find a statistically and economically significant relation between firm value and lobbying, indicating the market prices corporate lobbying activity. Our base estimate for the market value of an extra dollar spent on prior period lobbying is roughly $200. This estimate coupled with the sample mean of annual lobbying expenditures ($1.273M) indicates lobbying can increase shareholder wealth by roughly $253M per year. Hence, lobbying appears to be a worthwhile investment, especially given the market value of research and development expenditures and average internal rates of return on other corporate investments (Sougiannis (1994), Fama and French (1999)). The market value of lobbying results are robust to firm-level clustering of standard errors, dependent variable specification, and fixed effects (firm, industry, and time), and various robustness checks.

This study contributes to the political spending, corporate lobbying, and political connections literatures of finance and economics. Navarro (1988) argues that corporate philanthropy can be used to enhance the reputation of firms and garner political favors. However, Brown, Helland, and Kiholm-Smith (2006) show that corporate giving is primarily a function of agency problems, where managers use philanthropy to bolster their image or to fund certain charities in which they have a personal interest. Aggarwal, Meschke, and Wang (2008) show corporate campaign donations are related to agency problems associated with free cash

flow, suggesting contributions reflect the political leanings of management and are not investments in political capital. Also, Aggarwal, Meschke, and Wang (2008) show excess returns are negatively related to political donations, further supporting the view that donations represent agency problems rather than investment in political capital.[4]

Results for the determinants of corporate philanthropy and campaign contributions stand in contrast to the determinants of lobbying activity as we find no significant relation between corporate lobbying and cash flow. Further, our results show firm value is directly related to lobbying, while Aggarwal, Meschke, and Wang (2008) show firm value is negatively related to campaign contributions, which implyies the market distinguishes between types of political spending. Thus, we extend and complement the political spending literature by providing evidence differentiating the motives and shareholder wealth implications of corporate lobbying from other forms of political spending.

Our paper also contributes to the corporate lobbying literature. Richter, Samphantharak, and Timmons (2008) examine taxes and lobbying and find that increases in lobbying expenses leads to significantly lower effective tax rates. Alexander, Scholz, and Mazza (2009) find that firms lobbying for the American Jobs Creation Act of 2004, which created a tax holiday on repatriated earnings, have average tax savings to lobby expense ratios of 22,000 percent.[5] Yu and Yu (2008) find lobbying firms are less likely than non-lobbying firms to be detected

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[4] Furthermore, Goldman, Rocholl, and So (2008) find evidence suggesting campaign contributions proxy industry political preferences over the firm-specific political connections as campaign contributions do not positively impact firm value after controlling for industry effects.
[5] Alexander, Scholz, and Mazza (2009) calculate a return on investment from lobbying by dividing tax savings by lobby expenses. The authors do not examine lobbying and taxes within a multivariate framework.

committing fraud and that it takes longer for authorities to discover fraud committed by lobbying firms, allowing managers to sell shares before the negative information spreads through the market.

The present study is related to a working paper by Chen, Parsley, and Yang (2009) examining the financial operating performance and market valuation of lobbying firms. The authors show accounting-based performance is positively related to lagged lobbying expenses. Using a portfolio-based approach, Chen, Parsley, and Yang (2009) show that only firms in the top quintile of lobbying intensity outperform non-lobbying firms. Because of differences in methodologies, our market value of lobbying analysis addresses a different question. Specifically, we test for the effect of lobbying on excess returns within a multivariate framework, thereby controlling for factors known to influence market value. This approach allows us to test for the association between firm-value and lobby expenses and make meaningful (i.e., all-else constant) statistical and economic inferences. While we show a direct link between firm-value and lobbying, results presented by Chen, Parsley, and Yang (2009) provide a comparison of the performance of lobbying to non-lobbying firms.

We extend the corporate lobbying literature in two ways. First, we provide theory and evidence of factors influencing lobbying. Second, we investigate the relation between market value and lobbying activity, which is motivated by lobbying studies showing the financial benefit accruing to lobbying firms.

This research also complements the political connections literature as we show that connections via lobbying yield significant benefits to firms. Specifically, Fisman (2001)

examines the share performance of Indonesian firms during periods in which President Suharto's health was rumored to have worsened and finds that firms with stronger political connections experience greater losses relative to less connected firms. Faccio (2006) examines political connections for a cross-section of international firms and finds positive abnormal returns associated with the entry of large shareholders or corporate officers into politics. Faccio and Parsley (2007) find that firms headquartered in the hometown of recently deceased politicians experience negative returns, suggesting the market is aware of the benefits conferred upon connected firms. Goldman, Rocholl, and So (2008 and 2009) show that firms earn positive abnormal returns upon the announcement of adding a politically connected individual to the board of directors and that political connections affect the allocation of government procurement contracts, respectively.[6]

Our research is distinguished from prior political connections research as we use lobbying activity as the specific source of political connections, a new approach. In fact, Goldman, Rocholl, and So (2008) mention that lobbying is another way companies can become politically connected. While the majority of the cited studies classify political connections based on personal relationships, we believe the direct and concrete nature of lobby expenses makes this variable a useful proxy for political connections of U.S. firms for two reasons. First, lobbying expenses are objective and avoid the subjectivity of other measures of political connections used

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[6] Goldman, Rocholl, and So (2008) examine the relation between firm value and campaign contributions as a robustness check. The authors find that firm value is unrelated to campaign contributions.

in the literature.[7] Second, the continuous nature of lobbying expenditures provides an improved way to quantify the degree of firms' political connectedness; increased lobbying expenses imply stronger political connections. Therefore, this examination of the determinants and shareholder wealth effects of corporate lobbying extends the political connections literature by providing further evidence of the benefits provided by political connections.

I. Determinants of Corporate Lobbying

The expected net present value of corporate lobbying should be influenced by firm-specific characteristics, affecting both the potential change in firm value associated with desired changes in policies as well as the likelihood of the desired outcome occurring. Accordingly, we expect certain firm-specific characteristics to influence lobbying behavior.

The first proposed determinant of corporate lobbying is firm size. Agrawal and Knoeber (2001) mention that politics matter more for larger firms because of increased political oversight.[8] That is, political visibility increases with size. Accordingly, lobbying may be more valuable to larger firms, so we expect a direct relation between lobbying and firm size.

Next, we account for investment opportunities using the market-to-book ratio. Increased investment opportunities imply more potential payoffs through which lobbying can benefit firms; hence, we expect a direct relation between lobbying and investment opportunities. Similarly,

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[7] We note that Faccio's (2006) definitions of political connections classify fourteen publicly traded US firms (out of 7,124) as politically connected, which may suggest these connections criteria are most appropriate for non-US firms. Also, in terms of degree of political connections we argue that corporate lobbying affords firms the relatively same degree of connection as other measures used in the political connections literature as many lobbyists are former political insiders (Yu and Yu (2008) and www.opensecrets.org)).

[8] Agrawal and Knoeber (2001) show that the incidence of politically useful directors is directly related to firm size.

Brown, Helland, and Kiholm-Smith (2006) and Aggarwal, Meschke, and Wang (2008) control for the market-to-book ratio when estimating the determinants of corporate philanthropy and campaign contributions, respectively.

Industry-specific conditions should be a determinant of corporate lobbying as the value of lobbying likely varies across industries. Agrawal and Knoeber (2001) argue that the value of political connections are affected by firms' reliance on the government as a customer and the degree of government regulation, where both factors vary by industry. Brown, Helland, and Kiholm-Smith (2006) show that firms in more regulated industries are more likely to make charitable contributions and suggest firms attempt to buy protection via philanthropy. Lobbying could be similarly used by firms in industries sensitive to government oversight. We account for variation in industry conditions affecting lobbying behavior using industry affiliation, degree of dependence on intangible assets, and industry competitiveness.

We control for industry affiliation to account for general differences in government involvement across industries using the Fama and French (1997) 49-industry classifications. Another control for industry effects is corporate reliance on intangible assets via research and development expenditures. Brown, Helland, and Kiholm-Smith (2006) show that corporate philanthropy is directly related to research and development expenditures and rationalize this result in that firms relying more heavily on intellectual properties should more highly value investment in political capital because intangible assets may be more vulnerable to government regulation, hence policy changes. Accordingly, we expect lobbying behavior to be directly related to research and development expenses.

The last industry variable is concentration. Pittman (1976) shows that firms in more concentrated industries make greater campaign contributions and suggests contributions are used to curry political favor in terms of favorable changes in legislative policy. This is because the benefits of policy changes should be greatest for firms in industries with fewer market participants. Benefits provided by political capital in more competitive industries are spread across all firms in the industry, not just firms with investments in political capital, introducing a free rider problem. Accordingly, we expect lobbying to be directly related to industry concentration. We measure industry competitiveness using the Herfindahl index, the annual sum of squared market shares for all Compustat firms in each industry, where industries are defined via Fama and French (1997) 49 industries. The Herfindahl index approaches a maximum value of one as industry concentration approaches monopoly, so we expect lobbying to be directly related to the Herfindahl index.

Our final independent variable is cash flow, which accounts for lobbying ability. Two theories support a direct relation between lobbying behavior and cash flow. First, the benefit of reduced taxes varies directly with the level of cash flow, increasing the incentive to lobby. Richter, Samphantharak, and Timmons (2008) suggest lobbying efforts are successful in reducing corporate taxes as their findings suggest that tax rates are negatively related to lobby expenses. Second, firms with greater cash flow may lobby more actively simply because they can, so lobbying may be a by-product of the agency problems associated with excess cash flow (Jensen (1986)). Brown, Helland, and Kiholm-Smith (2006) and Aggarwal, Meschke, and Wang (2008) find that corporate philanthropy and campaign contributions, respectively, are directly

related to cash flow, which suggests these forms of political expenditures are symptomatic of agency problems associated with excess cash flow. Cash flow is measured as operating income before depreciation net of interest expense, income taxes, and common dividends.

A.   Model: The Determinants of Corporate Lobbying

We examine the factors influencing the corporate lobbying decision as well as lobbying intensity using the following model:

$$Lobby\_Var_{i,t} = \beta_0 + \beta_1 Size_{i,t-1} + \beta_2 MB_{i,t-1} + \beta_3 R\&D_{i,t-1} + \beta_4 Herf_{i,t-1} + \beta_5 CF_{i,t-1}$$
$$+ \ \beta_j Control\,Variables_{j,t} + \varepsilon_{i,t} \ . \tag{1}$$

To estimate the factors associated with lobbying participation, we estimate Equation (1) using Probit regressions and define the dependent variable as *Lobby_DV,* a binary variable equal to one if the firm reports lobbying expenses in year *t*, zero otherwise.   While the Probit results are helpful in determining factors influencing firms to lobby, factors associated with the degree to which firms invest in lobbying are of interest as well. We use two econometric methodologies for the lobbying intensity models. First, we use an OLS model specifying the dependent variable as the natural logarithm of annual inflation-adjusted lobbying expenses *(LN(AdjLobbyExp))* after adding $1 to each lobby expenditure to preserve the sample due to the large number of non-lobbying firm-years.[9]   Second, because of the large number of firm-years with no lobbying

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[9] A log-transformation is used because of the skewed lobbying data (see descriptive statistics in Table 1).

activity, we use Tobit regressions to estimate models specifying *LN(AdjLobbyExp)* as the dependent variable.[10]

Independent variables specified in Equation 1 are defined as follows. *Size* is the natural logarithm of assets in inflation-adjusted 2006 dollars.[11] The market-to-book ratio, *M/B*, is the ratio of the sum of market value of equity and total liabilities to total assets. *R&D* is the ratio of research and development expenditures to sales. The Herfindahl index, *HFI*, is the annual sum of squared market shares across the Fama and French (1997) industries. Cash flow, *CF*, is operating income before depreciation minus interest expense, income taxes, and common dividends divided by assets. We lag the financial variables thereby mitigating the potential for reverse causality between the dependent and independent variables. For example, controlling for contemporaneous cash flow could bias the results as successful lobbying could lead to an increase in current period cash flow. It is unlikely that current period lobbying drives prior period firm characteristics. *Controls* consists of fixed-effects for industry and time.

II. Data and Results

A.   Data Source and Description

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[10] As shown in Table 1, thirty-five percent of the firm-years have no lobbying activity, which truncates the distribution of the dependent variable. An additional motivation for the use of the Tobit methodology is due to the censored nature of firm-reported lobbying data, as discussed in footnote 13.

[11] Compustat abbreviations and (codes) for variables used are as follows: Sales (SALE, A12), Operating Income Before Depreciation (OIBDP, A13), Income Taxes-Total (TXT, A16), Total Assets (AT, A6), Total Liabilities (LT, A181), Interest Expense (XINT, A15), Common Shares Outstanding (CSHO, A25), Research and Development Expenditures (XRD, A46), Price-fiscal Year Close (PRCCF, A199), Cash Dividends-Common (DVC, A21). Market value of equity is Common Shares Outstanding* Price-fiscal Year Close.

Payments made by corporations to lobbying firms must be disclosed to the Secretary of the Senate's Office of Public Records (SOPR) as mandated by the Lobbying Disclosure Act of 1995. The Center for Responsive Politics (CRP) maintains a publicly available database that tracks lobbying expenses, as reported to the SOPR, from 1998 to the present.[12] Subsequently, our lobby expenditure data is taken from the CRP website.[13]

The data consists of annual lobby expenditures for S&P 500 firms over the 1998 to 2006 period.[14] Accounting data is obtained from Compustat. We delete observations with missing Compustat data, duplicate values, the first observation for each firm, and to mitigate the influence of outliers, firm-level ratios are winsorized at the one percent tails.[15] Our final sample consists of 3,045 firm-years consisting of 425 unique S&P 500 firms from 1999 to 2006.

B.   Descriptive Statistics: Determinants of Lobbying

Table I shows sample characteristics for lobbying and non-lobbying sub-samples. Approximately sixty-five percent of the firm-year observations, 1,967, engage in lobbying. For lobbying firms, the mean and median annual lobbying expense is $1.273M and $0.581M,

[12] The web address is www.opensecrets.org.

[13] We should elaborate on a few of the nuances of the lobby data. As discussed at www.opensecrets.org, firms are required to submit good faith estimates, rounded to the nearest $20,000, of all lobby expenses for each six month period. Firms spending less than $10,000 in a six month period do not have to state lobby expenses, and the CRP treats their lobby expenses as $0, which means lobbying expenditures are censored (lower end) as discussed in footnote 10. The CRP provides annual lobbying expenses by summing the mid-year and year-end reported lobbying expenditures. Further, the CRP attributes subsidiary lobby expenses to the parent firm. To check for reporting errors, the SOPR matches lobby expenses reported by firms to revenues reported by lobbyists. The lobbying data reported by the CRP does not include amounts spent on industry trade association lobbying and so is considered an estimate of direct firm-level lobby expense.

[14] Similarly, Goldman, Rocholl, and So (2008) collect campaign contributions data from the CRP website and restrict their sample to S&P 500 firms.

[15] The first observation for each firm is deleted because of the use of lagged values. We winsorize by all financial ratios used in Equation (1).

respectively, showing positive skew in the distribution of lobby expenses across firms. The measures of location for lobbying expenses indicate investments in lobbying are small expenses, relative to assets or revenues, of S&P 500 firms.

The sub-samples are significantly different at the ten percent level or stronger for three of the characteristics considered. Lobbying firms are larger, have fewer investment opportunities, and are in more concentrated industries. The univariate results for size and concentration are consistent with our expectations, unlike the result for investment opportunities.

Table II provides the sample distribution across time. The maximum and minimum number of observations for a given year are 391 (2004) and 370 (1999), respectively. Columns 3 and 4 show a general increasing trend in the percentage of firms that lobby and in the sum of annual lobbying expenses, respectively. From 1999 to 2006, annual lobbying expenditures increases by roughly forty-nine percent. Columns 5 and 6 show growth in the average firm's lobbying expense.

Table III provides the distribution of lobbying activity and expenditures by industry affiliation.[16] Descriptive statistics in Table III show substantial inter-industry variation in lobbying. Column 4 of Table III presents the industry lobby ratio, calculated as the sum of lobbying expenses across all years for all firms in an industry divided by the entire sample's sum of lobbying expenses. Pharmaceuticals and utilities industries have the two largest industry lobbying ratios.

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[16] Forty-five industry classifications are reported in Table III as no S&P 500 firms are classified as Agriculture, Textiles, Fabricated Products, and Defense firms.

Table IV displays the Pearson correlation coefficients. The correlations are largely consistent with the univariate results in Table I. Both corporate lobbying participation and intensity are positively and significantly correlated with size and industry concentration. Further, both lobbying proxies are inversely and significantly correlated with investment opportunities and cash flow. We delay making further inferences as multivariate tests provide more meaningful inferences.

C.   Multivariate Results: Determinants of Lobbying

Table V presents Probit, OLS, and Tobit regressions estimating the determinants of corporate lobbying behavior (Equation (1)). Each model includes industry and time dummies.[17] Standard errors are robust and cluster at the firm level for Probit and OLS models.[18]

Results in columns 1 through 3 show corporate lobbying is directly related to lagged firm size and is significant. The positive relation is robust across dependent variable and econometric specification, indicating larger firms are significantly more likely to lobby and spend more on lobbying, relative to smaller firms. Since lobbying expenditures represent our proxy for political connections, the direct lobby-size relation is consistent with Agrawal and Knoeber's (2001) view

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[17] Several of the industry dummies perfectly predict corporate lobbying participation (Probit models). Hence, we combine the problematic industries, in lieu of dropping firms in these industries or dropping the industry dummies altogether. The combinations include: Recreation-Entertainment; Rubber & Plastic-Construction Materials; Autos & Trucks-Aircraft-Shipbuilding; Precious Metals-Mining-Coal-Oil-Natural Gas; Business Supplies-Shipping Containers; Candy & Soda-Food Products. The standard Fama and French (1997) affiliations are used for the OLS and Tobit models.

[18] Standard errors are clustered at the firm level, as suggested by Petersen (2008) for corporate finance panel datasets. Also, the statistical inferences are robust to the use of Newey-West (1987) standard errors, which correct for both heteroskedasticity and autocorrelation.

that politics are more important to larger firms than smaller firms. Similarly, Brown, Helland, and Kiholm-Smith (2006) and Aggarwal, Meschke, and Wang (2008) find corporate philanthropy and campaign contributions, respectively, are directly related to firm size.

In columns 1 and 2 we find evidence of a direct relation between lobbying and investment opportunities, proxied by the market-to-book ratio. The direct relation between lobbying and the market-to-book ratio is consistent with lobbying being most lucrative for firms with greater investment opportunities, all else constant. This initial evidence suggests investment opportunities influence corporate lobbying.

While space constraints do not permit us to tabulate results for the Fama-French (1997) industry dummies, a comment is in order. Using the retail industry as the base case, the industry dummies measure industry differences in lobbying behavior. Untabulated industry results (OLS) show that the investment in lobbying is significantly different (ten percent level or stronger) from firms in the retail industry for twenty-three of the industry affiliations.[19] These results support univariate results showing substantial industry-level variation in lobbying.[20]

Results in columns 1 through 3 largely indicate that neither intangible assets via research and development expenses nor industry concentration have a statistically distinguishable impact on lobbying behavior. However, the strong correlation between industry affiliation and both

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[19] Industries with significantly greater lobbying expenditures include Entertainment, Healthcare, Medical Equipment, Pharmaceuticals, Electrical Equipment, Automobiles, Aircraft, Shipbuilding, Precious Metals, Mining, Coal, Utilities, Personal Services, Business Services, Hardware, Software, Business Supplies, Shipping Containers, Transportation, and Restaurants, etc. Industries with significantly reduced lobbying expenditures include Rubber and Plastic and Real Estate.

[20] While we find no differences in the lobbying of finance firms (banks and insurance companies) and retail firms, a comment is in order. Regulation of banks and insurance firms generally occurs at the state level, so these firms also lobby through industry trade association, which is not accounted for in the lobby expense data.

research and development expense and industry concentration. Thus, we re-estimate the models (columns 1 through 3) without industry dummies and find that lobbying is directly related to research and development expense.[21] We find evidence that lobbying is directly and significantly related to industry concentration, but the results are not robust.[22]

Importantly, we find no evidence of a significant relation between lobbying and cash flow.[23] This indicates that the ability to afford lobbying expenses has no bearing on lobbying behavior. This is a key result as Brown, Helland, and Kiholm-Smith (2006) and Aggarwal, Meschke, and Wang (2008) find that corporate philanthropy and campaign contributions, respectively, are directly related to cash flow, suggesting philanthropy and campaign contributions represent management consumption of perquisites. Thus, our insignificant lobby-cash flow relation indicates differences in motives across different types of corporate political spending. While campaign contributions and philanthropy appear to be functions of perquisite consumption by management, our evidence indicates lobbying is used strategically as an investment.

Unreported results for the time dummies show that lobbying activity has significantly increased over time, even after controlling for other factors. These results confirm descriptive statistics showing increased corporate lobbying activity. Overall, the results presented in Table

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[21] The variance inflation factors show some degree of collinearity between the Herfindahl Index and a handful of the industry dummies. Given that multicollinearity does not bias the results, we leave the collinear variables in the model to ensure that the results do not suffer from omitted variables bias.

[22] Specifically, we find that lobbying participation is unrelated to industry concentration. However, lobbying intensity is directly related to industry concentration, and the strength of the relation varies by econometric methodology.

[23] While it is possible that size absorbs the positive effect of cash flow, we do not find that this is the case. To determine whether this is a valid issue, we re-estimate the models after dropping size and still find an insignificant lobbying-cash flow relation.

V are robust across dependent variable specification as well as econometric methodology (Probit, OLS, and Tobit) and indicate the primary determinants of both lobbying participation and intensity are firm size, investment opportunities, and industry affiliation. From these results we infer that corporate lobbying is primarily influenced by the expected net present value of lobbying, not an ability to lobby.

D.   *Robustness Checks*

We assess the sensitivity of our results to validate and strengthen the implications of our initial evidence regarding the determinants of corporate lobbying. We re-estimate the models after including the lagged dependent variable to account for historical and/or unobserveable factors that cause differences in current period lobbying, which should further mitigate the potential for omitted variables bias.

Results for lobbying participation and lobbying intensity models after re-estimating Equation (1) with the lagged dependent variable are tabulated in columns 4 through 6. Results show current period lobbying is directly related to prior period lobbying, indicating persistence in lobbying behavior. Similar to prior results, the results controlling for inertial effects show lobbying is directly related to firm size and the market-to-book ratio and unrelated to cash flow.

Two different results emerge once we include the lagged dependent variable. First, both lobbying participation and intensity are directly related to research and development expenditures. Brown, Helland, and Kiholm-Smith (2006) also find a direct relation between corporate philanthropy and research and development expenses. The direct lobby-research and

development expense relation may be due to firms relying more heavily on intellectual properties placing a greater emphasis on investments in political capital because intangible assets may be more vulnerable to government regulation, as argued by Brown, Helland, and Kiholm-Smith (2006). Another difference in results is that lobbying intensity is directly related to the Herfindahl index, indicating firms in more concentrated industries have greater lobby expenditures. This direct relation is consistent with the expectation that the benefits of changes in operating environments, stimulated by lobbying, are more valuable to firms in industries with fewer competitors. Overall, the results are robust after accounting for unobserved factors via prior period lobbying.

In untabulated results, we examine whether the results are sensitive to extreme lobbying. First, we re-estimate the models after dropping observations with the twenty largest lobby expenditures.[24] The models are robust as lobbying behavior is significantly related to size, investment opportunities, research and development expenditures, and industry affiliation. Second, to determine whether the results are driven by observations in certain industries that are most heavily engaged in lobbying, we re-estimate the models after dropping the industries with the five largest lobbying intensity ratios in Table III.[25] The results are robust as each model shows the determinants of lobbying behavior consist of size, investment opportunities, and industry affiliation. Evidence concerning the relation between lobbying and research and development expenditures is mixed.

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[24] This restriction is equivalent to dropping observations with inflation-adjusted lobbying expenditures greater than $9.12M.
[25] These industries include Utilities. Pharmaceutical, Electronic Equipment, Aircraft, and Transportation.

III. Marginal Value of Corporate Lobbying

The second objective of our study is to provide evidence of shareholder wealth effects due to corporate lobbying. This objective addresses whether lobbying is a value increasing investment and is important given research showing other forms of political spending result from agency conflicts (Brown, Helland, and Kiholm-Smith (2006) and Aggarwal, Meschke and Wang (2008)). Grossman and Helpman (1994) argue that the incentives to influence legislation arises from the impact that policy changes can exert on the fortunes of firms. Contemporaneous lobbying research supports Grossman and Helpman's (1994) conjecture as evidence presented by Richter, Samphantharak, and Timmons (2008), and Alexander, Scholz, and Mazza (2009)) suggests lobbying can benefit firms via reduced taxes. Faccio (2006) discusses specific benefits, in addition to reduced taxes, provided by political connections, including preferential treatment in competition for government contracts and by government enterprises and relaxed regulatory oversight or stricter oversight of competitors.[26] Chen, Parsley, and Yang (2008) argue that firms lobby for defensive purposes that – if successful—lead to an unobserved outcome as defensive lobbying is used to maintain existing conditions rather than altering current policies. Accordingly, it is difficult to quantify the monetary value of policy outcomes influenced by lobbying. However, we can exploit the market's perception of the benefits provided by lobbying to estimate the dollar value of lobbying.

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[26] Also, Stigler (1971) mentions government provisions affecting corporate value.

A.   *Model: Marginal Value of Corporate Lobbying*

We examine the relation between firm value and lobbying using a variant of the valuation framework provided by Faulkender and Wang (2006).[27]   We define the dependent variable as excess returns, calculated as the firm's annual return minus the return on its benchmark portfolio, using the Fama and French (1993) size and book-to-market portfolios.   The independent variables control for factors influencing firm-value, including profitability, and financing and investment policy. By including a proxy for lobbying, we are able to test whether investors incorporate lobbying activity into stock prices.   The Faulkender and Wang (2006) model provides a strong test for the valuation of lobbying as the control variables are theory-based factors influencing returns, which mitigates the potential for omitted variables bias as well as the potential endogeneity of lobbying. Each independent variable is scaled by the lagged market value of equity and the dependent variable is the annual percentage change in market value. As discussed by Faulkender and Wang (2006), the model's coefficients can be interpreted as the incremental change in shareholder wealth associated with a $1 change in the independent variable.

The valuation framework used to estimate the value of corporate lobbying expenses is:

$$r_{i,t} - R_{i,t}^B = \gamma_0 + \gamma_1 \frac{LobbyExp_{i,t\text{-}1}}{MktVal_{i,t\text{-}1}} + \gamma_2 \frac{\Delta Earn_{i,t}}{MktVal_{i,t\text{-}1}} + \gamma_3 \frac{\Delta Assets_{i,t}}{MktVal_{i,t-1}} + \gamma_4 \frac{\Delta R\&D_{i,t}}{MktVal_{i,t\text{-}1}} + \gamma_5 \frac{\Delta IntExp_{i,t}}{MktVal_{i,t\text{-}1}}$$

$$+ \gamma_6 \frac{\Delta Div_{i,t}}{MktVal_{i,t-1}} + \gamma_7 \frac{\Delta NF_{i,t}}{MktVal_{i,t-1}} + \gamma_8 Lev_{i,t} + \gamma_j Controls_{j,t} + \varepsilon_{i,t} , \qquad\qquad (2)$$

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[27] Faulkender and Wang (2006) estimate the market value of cash. Subsequent papers by Dittmar and Mahrt-Smith (2007) and Klasa, Maxwell, and Ortiz-Molina (2008) use Faulkender and Wang's (2006) methodology to examine various issues pertaining to the value of cash.

where *ΔX* indicates a change in *X* from period *t-1* to *t*.[28] The dependent variable is the change in firm value, measured by firm *i*'s annual stock return over the year *t-1* to *t* minus its benchmark portfolio return during year *t*. The benchmark portfolios are the Fama and French (1993) size and book-to-market value-weighted portfolios.

We proxy lobby activity using the ratio of lagged lobby expense to the lagged market value of equity. Prior period lobbying offers several advantages. First, institutional difficulties in changing policies imply future payoffs to lobbying; this is supported by results showing financial operating performance is directly related to prior period lobbying (Chen, Parsley, and Yang (2009)). Second, lobbying expenditure data is generally not disclosed in a timely or transparent way to investors.[29] Subsequently, we expect lobbying investments to be capitalized into equity prices over time. Finally, using prior period lobbing reduces the likelihood of reverse causality bias as improved current period market performance could influence firms to lobby more in the current period.

The coefficient of interest is γ_1, the incremental change in shareholder wealth attributable to an additional $1 spent on lobbying in the prior year. Estimates for the marginal value of lobbying show the degree to which lobbying affects shareholder wealth.

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[28] Since Faulkender and Wang's (2006) objective was to estimate the marginal value of cash, the authors split total assets into cash and net assets. Since our study has no bearing on the value of cash, we replace net assets and cash with total assets. Also, we control for time and industry dummies. The remaining difference in models is our inclusion of the lobbying variable.

[29] For a similar reason, Aggarwal, Meschke, and Wang (2008) examine the lagged effect of corporate campaign contributions on firm-value. Also, the authors argue that the long-term potential payoffs to political spending necessitate the use of longer-horizon returns rather event study windows, which supports our use of the Faulkender and Wang (2006) model.

The remaining independent variables are defined similarly to those of Faulkender and Wang (2006) and control for factors affecting firm value, including profitability (*Earn*), financing (*IntExp*, *Div*, *NF*, and *Lev*) and investment policy (*Assets* and *R&D*). Independent variables other than *Lev* are scaled by the lagged market value of equity (*MktVal*).[30] In addition to the controls used by Faulkender and Wang, we include industry (Fama and French (1997)) and time indicator variables. This vector of controls, generally accepted to influence firm value, reduces the likelihood of endogeneity problems associated with controlling for lobbying expenses.

B.   Descriptive Statistics: Marginal Value of Corporate Lobbying

The descriptive statistics for the variables used to estimate the marginal value of lobbying appear in Table VI. The final sample of lobbying and non-lobbying firms consists of 1,616 firm-years for 333 unique S&P 500 firms over the 1999 to 2006 period. The sample is winsorized at the one percent tails for each of the financial ratios included in Equation (2).[31] Mean and median

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[30] The variables are defined as in Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007). Complete variable definitions and calculations, along with Compustat mnemonics and codes, are as follows. *MktVal* is market value of equity (Share Price (PRCCF:199)*Shares(CSHO:25)); *Earn* is earnings before extraordinary items (Income before extraordinary items (IB:18) + Interest expense (XINT:15) + Deferred taxes (TXDI:50) + Investment tax credit (ITCI:51)); *Assets* is assets (AT:6); *R&D* is research and development expenses (XRD:46, set equal to zero if missing); *IntExp* is interest expense (XINT:15); *Div* is common dividends (DVC:21); *NF* is net financing (Sale of Common and Preferred Stock (SSTK:108) minus Purchase of Common and Preferred Stock (PRSTKC: 115) plus Issuance of Long-Term Debt (DLTIS:111) minus Reduction in Long-Term Debt (DLTR); *Lev* is leverage ratio, calculated as total debt (Long-Term Debt (DLTT:9) + Debt in Current Liabilities (DLC:34)) divided by the sum of total debt and market value of equity.

[31] The sample size is smaller than for the determinants of lobbying sample because of additional data requirements needed to estimate the Faulkender and Wang (2006) model. Namely, Compustat's coverage of the following variables particularly reduces our sample size: Deferred taxes (TXDI:50), Investment tax credit (ITCI:51)), Sale of Common and Preferred Stock (SSTK:108), Purchase of Common and Preferred Stock (PRSTKC: 115), Issuance of Long-Term Debt (DLTIS:111), Reduction in Long-Term Debt (DLTR).

excess returns are roughly six and five percent, respectively, consistent with abnormal returns

being positively skewed. Differences in descriptive statistics, relative to Faulkender and Wang

(2006), are due to differences in sample firms and sampling periods. Specifically, our sample

consists of S&P 500 firms, while Faulkender and Wang (2006) study all U.S. publicly traded

firms. Also, Faulkender and Wang (2006) examine the 1972 through 2001 period, while we

examine the 1999 through 2006 period.   Still, measures of location for several of the control

variables are similar to those reported by Faulkender and Wang (2006). The descriptive statistics

for lobbying expenses as a percentage of market capitalization echo earlier results showing that

lobbying expenditures are a small expense for publicly traded firms.[32]

C.   Marginal Value of Corporate Lobbying Activity

Results in Table VII present the marginal value of lagged lobby expenditures and the

estimates for the control variables. As in Faulkender and Wang (2006), results in column 1 are

estimated using pooled OLS and use robust standard errors that allow for firm-level clustering.[33]

Results for control variables are similar to those provided by Faulkender and Wang (2006).

Column 1 results are estimated using the full sample of lobbying and non-lobbying firms.

The estimate for γ_8 is positive and significant at the one percent level, indicating that even after

accounting for firm-specific risk in the dependent variable and controlling for firm characteristics

known to affect market value, the change in shareholder wealth is directly associated with

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[32] Using the full sample of lobbying and non-lobbying firms, we tests for differences in the excess returns across
sub-samples and find no significant differences in abnormal return performance.
[33] Results are robust using Newey-West (1987) standard errors.

lobbying. Further, the significance of the value-lobby relation shows corporate lobbying is a priced factor.

Results showing a direct relation between firm value and lobbying are revealing considering Aggarwal, Meschke and Wang (2008) find that firm value is negatively related to corporate campaign contributions. Differences in the market value impacts of these forms of political spending indicate markets differentiate between lobbying and campaign contributions. Further, the market value results are strengthened as we show that, unlike campaign contributions, lobbying is unrelated to cash flow, which supports the agency explanation for corporate campaign contributions. Overall, our results complement those presented by Aggarwal, Meschke and Wang (2008) in terms of the effectiveness of political spending as our market value results suggest lobbying is an effective form of political spending.

The statistically significant marginal value of lobbying estimate also has important economic implications as it indicates that each additional dollar spent on lobbying in the prior year increases shareholder wealth by roughly $199 in the following year. Alexander, Scholz, and Mazza (2009) calculate a mean ratio of tax savings to lobby expenses suggesting a 22,000 percent return on investment from lobbying. We believe our estimate for the dollar return on lobbying has greater economic and statistical meaning as we estimate the return to lobbying within a multivariate framework.[34] Further, our return to lobbying estimate captures the

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[34] Alexander, Scholz, and Mazza (2009) calculate the return on lobbying by scaling the tax savings in 2004 by lobbying expenses and do not examine the wealth implications of corporate lobbying within a multivariate framework. Our return on lobbying estimate of roughly 19,800% ((199-1)/1) may be less than the return on lobbying estimated by Alexander, Scholz, and Mazza (2009) because of differences in methodologies as we use a multiple regression approach. Also, they calculate the lobbying return on investment only for lobbying firms.

market's assessment of all of the benefits associated with lobbying, not just tax savings, that are impounded into equity values.

Our estimate for the return on lobbying has further economic meaning given the annual average lobbying expense of lobbying firms. Specifically, the sampled lobbying firms spend, on average, $1.273M (Table 1) per year on lobbying. This suggests the incremental change in shareholder wealth created by prior period lobbying is in excess of $253M, on average. Despite the small scale of lobbying expenditures, relative to corporate cash flows, the effect of lobbying is economically large because of the high returns on investment from lobbying.[35]

The economically significant returns to lobbying are also important given investments typically made by firms. Fama and French (1999) find the internal rate of return earned by the average firm is approximately 7.38 percent. Further, Sougiannis (1994) finds that the market value contribution of an additional dollar spent on research and development is roughly $5.

The direct expenditures reported to the government are plausibly the minimum amount firms spend on lobbying. Lobbying may be underreported as spending on indirect lobbying via trade associations or other types of organizations are not reported as lobbying expenditures. Thus, the observable lobbying data may serve as a proxy for actual lobbying expense. If the observable lobbying data is less than actual amounts spent on lobbying, then the marginal value estimate for lobbying would be an upper bound estimate. However, Chen, Parley, and Yang (2009) argue that firms may lobby for defensive purposes, implying the full benefit from lobbying is unobservable (e.g., an averted or postponed loss). Depending on the extent to which

[35] De Figueiredo and Silverman (2006) also show a significant effect of lobbying for Universities. They find that the marginal value of lobbying ranges from $1.56 to $5.24 for their sample of universities that lobby.

the market can discern the value implications of defensive lobbying, the marginal value of lobbying results may be understated. Thus, it is difficult to determine whether our estimate for the market value of lobbying represents an upper or lower bound. Regardless, the direct association between market value and lobbying is important in a broad sense as it implies that political connections made via lobbying add substantially to firm value, consistent with the political connections literature showing connected firms outperform unconnected firms (Fisman (2001), Faccio (2006), Faccio and Parsley (2007), and Goldman, Rocholl, and So (2008)).

D.   Reported Robustness Tests

It is conceiveable that lobbying firms are simply better at predicting the passage of certain legislation and thus lobby more in anticipation of the win, which could cause a spurious positive and significant relation between firm value and lobbying. To address this concern we provide several robustness tests. First, we determine whether the direct relation between firm-value and lobbying is robust after accounting for firm-specific heterogeneity by dropping the time invariant industry dummies and re-estimating Equation (2) using fixed-effects. Firm fixed-effects should account for heterogeneity across firms in the ability to predict the passage of legislation, an effect that may otherwise be attributed to the lobbying variable. The estimate for the marginal value of lobby expenditures using fixed-effects (column (2)) is $604, roughly three

times the initial estimate. Hence, after accounting for fixed-effects, the direct relation between shareholder wealth and lobbying is still economically and statistically significant.[36]

In addition to potential bias caused by an ability to anticipate a beneficial change in legislation, lobbying is a choice variable, which could mean the results suffer from self-selection bias. As a first pass, we determine whether the results are sensitive to the sample by restricting the sample to firm-years reporting lobby expenses as non-lobbying firms may expect reduced expected economic benefits from lobbying, which could bias downward the estimated marginal value of lobbying for lobbying firms. Results in column 3 show the marginal value of lobbying estimate increases to $232, indicating the realized benefits from lobbying are greater for lobbying firms, relative to non-lobbying firms. Recognizing the potential self-selection bias caused by restricting the sample to lobbying firms, we estimate a Heckman-Probit (1979) self-selection model using the Probit equation used in column 4 of Table V, where the exclusion restrictions consist of the determinants of lobbying participation. After estimating the selection equation, we calculate the inverse Mill's Ratio (λ) and include it as a control variable in the value regression. Results in column 4 of Table VII show the marginal value of lobbying estimates are robust to self-selection bias as the marginal value estimate of lagged lobbying exceeds the initial value and is significant at the one percent level.[37] Further, λ is insignificant indicating no sample selection bias for the restricted sample. Thus, the endogeneity of the lobbying decision does not appear to influence the marginal value of lobbying results

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[36] Further, the results are robust after estimating random-effects as well, which also allows us to control for industry affiliation.
[37] The sample size for Heckman-Probit results (column 4) is less than that for the restricted model (column 3) because of the additional data requirements needed to estimate the selection equation.

Another way to determine if firm value and lobbying are spuriously related via increased lobbying in anticipation of changes in legislation, is to provide evidence regarding the sensitivity of the results with respect to extreme lobbying activity. This is because firms with an improved ability to anticipate policy changes may lobby the most intensively to ensure the favorable policy outcome. Thus, dropping firms with extreme lobbying activity should mitigate this concern. Further, this robustness check reduces the likelihood of the marginal value of lobbying estimates being driven by a handful of firms for which lobbying proved to be especially lucrative. The restrictions used are similar to those used in the determinants of lobbying section.[38] We first re-estimate Equation (2) after dropping the observations with the twenty largest lobby expenditures.[39] Results in column 5 are quantitatively and qualitatively unchanged as the marginal value of lobbying estimate is positively signed and significant at the one percent level. Interestingly, after dropping the observations with the twenty largest lobbying expenditures, both the marginal value of lobbying estimate and its *t*-statistic increase, relative to the original results in column 1.

To determine whether results are unduly influenced by firms in industries most heavily engaged in lobbying, we re-estimate Equation (2) after dropping observations in industries with the five largest lobbying intensity ratios (Table III).[40] Results in column 6 confirm earlier

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[38] Results in columns 5 through 7 are estimated using the full sample, extreme lobbying activity sample restriction notwithstanding, of lobbying and non-lobbying firms.

[39] This restriction is equivalent to dropping observations with inflation-adjusted lobbying expenditures greater than $9.348M. Note that this restriction is enforced coupled with winsorizing the data at the one percent level of each tail of the financial ratios included in Equation (2), which includes the ratio of lagged lobby expenditures to lagged market value of equity.

[40] We drop observations in the following industries: Utilities, Pharmaceutical, Electronic Equipment, Aircraft, and Transportation.

findings. The estimated coefficient loses statistical strength but is still significant at the five percent level. Overall, the reported robustness tests suggest the direct association between firm value and lobbying is not spurious.

E.   Untabulated Robustness Tests

Another potential explanation for our results is that perhaps better performing firms simply lobby more heavily. We alleviate this concern by individually including the lagged value of the dependent variable and the lagged change in earnings as control variables. These additional independent variables should account for the better performing firm effect. The initial results are robust as firm value and lobbying are still directly related.

In untabulated results, we examine the sensitivity of the results to alternate dependent variable specifications.[41] Specifically, we replace the Fama-French (1993) value-weighted benchmark portfolio with the following: Fama-French (1993) equally-weighted benchmark portfolio, CRSP equal and value-weighted portfolios, and raw returns. The results are robust as the marginal value of lobbying estimate is still positive and significant.

As a final robustness check, we assess our results with respect to overall model specification using Fama and French (1998) value regressions.[42] We augment the Fama and French (1998) methodology by including the level of lobby expenses scaled by total assets as well as the lagged and future two-year change in lobby expenses to total assets. Although the

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[41] Untabulated results are available upon request.
[42] Fama and French (1998) use the value regressions to estimate the impact of taxes on firm value via the market values of leverage and dividends.

current period lobby expense ratio is insignificant, the lagged two-year change in lobby expenses is positive and significant. This result allows a similar inference to our initial results: prior period lobbying leads to increased shareholder wealth. Results using an alternate model specification (Fama and French (1998)) confirm our initial marginal value of lobbying results.

Overall, the results show that firm value is directly associated with firm value, even after controlling for factors know to influence shareholder wealth, which reduces the likelihood of omitted variables bias. Further, we show that the direct value-lobbying relation is robust to various issues.

IV. Conclusion

This paper provides an examination of the factors influencing corporate lobbying and reports evidence concerning lobbying as an investment. Almost two-thirds of the S&P 500 firm-year observations in our sample lobby, and the factors influencing firms to lobby along with the impact of lobbying on firm value are open questions.

Our results indicate the primary determinants of lobbying are firm size, investment opportunities, and industry fixed-effects. We find no relation between lobbying and cash flow, which contrasts with evidence presented for other forms of political spending showing corporate philanthropy and campaign contributions are directly related to cash flow. We interpret our results as evidence that the corporate motives for political spending vary based on type of political spending. Specifically, the lack of a significant lobby-cash flow relation provides evidence that the primary motivation for lobbying is to increase shareholder wealth, while other forms of political spending arise from agency problems. Further, the insignificant lobbying-cash

flow relation indicates a reduced ability to lobby (low cash flow) does not constrain firms' lobbying, implying that firms choose not to lobby because they view lobbying as a negative net present value investment.

Our second objective is to quantify the value of lobbying and results indicate an extra dollar spent on prior period lobbying increases current period market value by roughly $200. The economic significance of the marginal value of lobbying is important as it is much larger than the average internal rates of return earned on other corporate investments and research and development expenditures (Fama and French (19990 and Sougiannis (1994)). Further, the size of the marginal value of lobbying estimate suggests lobbying can be a strategically effective way to increase firm value.

The direct firm value-lobbying relation is also important when coupled with results from previous research showing differences in the shareholder wealth effects of different forms of political spending. Specifically, firm value is negatively related to campaign contributions (Aggarwal, Meschke, and Wang (2008)) suggesting the market views campaign contributions as a function of agency problems, unlike lobbying. Thus, our results are important in a broad context as we show the outcomes of political spending depend on the type of political spending.

Given the large returns to lobbying, a relevant question concerns the relative paucity of funds spent on lobbying. The determinants of lobbying results shed some light on this by indicating that lobbying behavior is related to size, investment opportunities, and industry affiliation, from which we infer that lobbying is not lucrative for all firms. Our results showing lobbying confers significant benefit to firms and is not a by-product of excess free cash flow

calls into question investor relation groups that criticize corporate lobbying expenses.

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Table I. Differences in Firm Characteristics: Lobbying and non-Lobbying Firms

Table I provides descriptive statistics for the sample that consists of 3,045 firm-years for 425 S&P 500 companies over the period 1999 to 2006. The lobbying and non-lobbying sub-samples consist of 1,967 and 1,078 firm-years, respectively. *LobbyExp* represents firms' annual inflation-adjusted lobby expenditures in year *t*. *Assets* is inflation-adjusted total assets in billions. *M/B* is the sum of market value of equity and total liabilities scaled by total assets. *R&D* is research and development expenditures divided by sales. *HFI* represents the industry level Herfindahl index, calculated as the sum of squared market shares for firms in a given industry. *CF* is operating income before depreciation net of interest expense, income taxes, and common dividends and is scaled by total assets. ***, **, and * represent statistical significance at the one, five, and ten percent levels, respectively.

Variables	Lobbying Firms (1)			Non-Lobbying Firms (2)			Difference in Means (1) – (2)	
	N	Median	Mean	N	Median	Mean	Difference	T-Stat
$LobbyExp_t$ ($M)	1,967	0.581	1.273	1,078	n/a	n/a	n/a	n/a
$Assets_{t-1}$ ($B)	1,967	11.270	15.977	1,078	3.788	7.325	8.652***	18.980
M/B_{t-1} (Ratio)	1,967	1.672	2.409	1,078	1.907	2.773	−0.364***	−3.500
$R\&D_{t-1}$ (%)	1,967	0.000	4.162	1,078	0.000	4.765	−0.600	−0.860
HFI_{t-1} (%)	1,967	6.449	8.632	1,078	6.237	8.064	0.600**	2.170
CF_{t-1} (%)	1,967	8.052	8.365	1,078	9.167	8.890	−0.520	−1.430

Table II. Time Distribution of Sample

Table II provides the distribution of the sample across time for the sample of S&P 500 firm-years. *%Lobby* is the percentage of firms that lobby in a given year. *Sum of LobbyExp* is total amount spent on lobbying in a given year. Mean *LobbyExp_All* represents the mean annual amount spent on lobbying (inflation-adjusted) for both lobbying and non-lobbying firms. Mean *LobbyExp_Lobbyers* represents the mean annual amount spent on lobbying (inflation-adjusted) by lobbying firms.

Year	N (firm-year obs.)	% Lobby	Sum of LobbyExp ($M)	Mean LobbyExp_All($M)	Mean LobbyExp_Lobbyers ($M)
1999	370	57.297	258.270	0.698	1.218
2000	375	56.533	261.133	0.696	1.232
2001	371	60.647	289.674	0.781	1.287
2002	379	63.852	305.951	0.807	1.264
2003	385	67.013	331.441	0.861	1.285
2004	391	67.519	329.288	0.842	1.247
2005	388	70.876	343.478	0.885	1.249
2006	386	72.280	384.593	0.996	1.378

Table III. Industry Distribution of Sample

Table III provides the distribution of the sample across industries for the sample of S&P 500 firm-years. Industry classifications are based on the Fama-French (1997) 49-industry industry classification system. Descriptive statistics for 45 of the 49 Fama-French (1997) industries are shown as no S&P 500 firms were classified as Agriculture, Textiles, Fabricated Products, and Defense firms. *%Lobby* is the percentage of firm-years in a given industry that lobby. *Ind. Lobby Ratio* is the sum of lobbying expenses across all firm-years in a given industry divided by the sample's total lobbying expenses.

Industry Focus	N	% Lobby	Ind. Lobby Ratio
Food Products	101	66.337	1.256
Candy and Soda	15	40.000	0.031
Beer and Liquor	48	70.833	1.509
Tobacco Products	17	76.471	0.796
Recreation	16	50.000	0.062
Entertainment	15	100.000	1.043
Print. & Publishing	48	75.000	0.589
Consumer Goods	80	66.250	1.510
Apparel	48	20.833	0.068
Healthcare	39	66.667	0.416
Medical Equip.	72	75.000	1.614
Pharmaceutical	162	77.778	13.406
Chemicals	90	67.778	2.429
Rubber & Plastic	12	0.000	0.000
Const. Materials	48	29.167	0.417
Construction	43	53.488	0.336
Steel Works	32	62.500	0.658
Machinery	120	55.000	1.316
Electrical Equip.	24	83.333	0.382
Autos & Trucks	16	100.000	0.498
Aircraft	53	88.679	7.642
Shipbuilding	16	100.000	2.012
Precious Metals	11	72.727	0.116
Mining	16	100.000	0.205
Coal	11	90.909	0.294
Oil and Nat. Gas	166	56.024	3.328
Utilities	250	93.600	16.139
Communication	78	62.821	4.152
Personal Services	16	81.250	0.249
Business Services	107	60.748	1.897
Computer Hardware	93	82.796	2.277
Computer Software	107	76.636	3.963
Electronic Equip.	208	47.596	11.312
Measuring Equip.	70	38.571	0.229
Business Supplies	72	70.833	2.082
Shipping Cont.	8	100.000	0.380
Transportation	79	86.076	5.590
Wholesale	65	36.923	0.581
Retail	249	42.570	2.182

Restaurants, Etc.	58	81.034	1.104
Banking	21	80.952	0.728
Insurance	154	66.234	4.210
Real Estate	2	0.000	0.000
Trading	66	34.848	0.795
Other	23	73.913	0.196

Table IV. Pearson Correlation Coefficients

Table IV provides Pearson correlation coefficients for the sample of S&P 500 firm-years over the period 1999 to 2006. *Lobby_DV* is an indicator set equal to 1 if the firm engaged in lobbying activity in year *t*, 0 otherwise. *LN(AdjLobbyExp)* is the natural logarithm of annual inflation-adjusted lobby expenditures plus $1 as reported in year *t*. *LN(Assets)* is the natural logarithm of total assets in 2006 dollars. *M/B* is the sum of market value of equity and total liabilities scaled by total assets. *R&D* is research and development expenditures divided by sales. *HFI* represents the Herfindahl index, calculated as the sum of squared market shares for firms in a given industry. *CF* is operating income before depreciation net of interest expense, income taxes, and common dividends and is scaled by total assets. ***, **, and * denote statistical significance at the one, five, and ten percent levels, respectively.

Variables	$Lobby\_DV_t$	$LN(AdjLobbyExp)_t$	$LN(Assets)_{t-1}$	M/B_{t-1}	$R\&D_{t-1}$	HFI_{t-1}
$LN(AdjLobbyExp)_t$	0.984***					
$LN(Assets)_{t-1}$	0.367***	0.422***				
M/B_{t-1}	—0.063***	—0.063***	—0.361***			
$R\&D_{t-1}$	—0.016	—0.019	—0.211***	0.223***		
HFI_{t-1}	0.039**	0.041**	—0.042**	0.030*	—0.017	
CF_{t-1}	—0.031*	—0.035*	—0.000***	0.125***	—0.416***	0.073***

Table V. Determinants of Corporate Lobbying

Table V presents results for models used to estimate factors associated with corporate lobbying. The sample consists of S&P 500 firm-years over the period 1999 to 2006. Two dependent variable specifications are used: $Lobby\_DV_t$ is a binary variable set equal to 1 if the firm engaged in lobbying activity in year t, 0 otherwise; $LN(Adj\_LobbyExp)$ is the natural logarithm of annual inflation-adjusted lobby expenditures plus \$1. Models are estimated with the aforementioned dependent variables using Probit, OLS, and Tobit, respectively. $Size$ is the natural logarithm of total assets in 2006 dollars. M/B is the sum of market value of equity and total liabilities scaled by total assets. $R\&D$ is research and development expenditures divided by sales. HFI represents the industry level Herfindahl index, calculated as the sum of squared market shares for firms in a given industry. CF is operating income before depreciation net of interest expense, income taxes, and common dividends and is scaled by total assets. All models include indicator variables for industry (Fama-French (1997)) and time. Standard errors for Probit and OLS models are robust to heteroskedasticity and are clustered at firm level. Test statistics are in parentheses below coefficients. Results in columns (4) through (6) control for the lagged dependent variable. R-square represents adjusted R-square for OLS models and represents psuedo R-square for Probit and Tobit models.

	(1)	(2)	(3)	(4)	(5)	(6)
$Size_{t-1}$	0.465***	2.277***	1.146***	0.263***	0.480***	0.436***
	(6.960)	(8.960)	(27.060)	(6.480)	(5.950)	(15.320)
M/B_{t-1}	0.042*	0.169*	0.097***	0.037***	0.071**	0.064***
	(1.870)	(1.660)	(5.670)	(3.020)	(2.000)	(5.890)
$R\&D_{-1}$	0.334	1.360	0.471*	0.473***	0.983*	0.340**
	(1.640)	(1.600)	(1.740)	(3.100)	(1.890)	(2.030)
HFI_{t-1}	−0.826	8.862	3.180	1.674	11.075**	4.102**
	(−0.530)	(1.270)	(1.190)	(1.270)	(2.250)	(2.420)
CF_{t-1}	0.323	1.462	0.731	0.430	0.662	0.268
	(0.670)	(0.750)	(1.070)	(1.310)	(0.880)	(0.630)
$Lobby\_DV_{t-1}$				2.538***		
				(26.820)		
$LN(Adj\_LobbyExp_{t-1})$					0.787***	0.299***
					(47.790)	(53.880)
Intercept	−10.882***	−47.488**	−16.420***	−7.356	−10.223	−1.570**
	(−7.120)	(−8.240)	(−16.240)	(−7.830)	(−5.470)	(−2.350)

Observations	3,045	3,045	3,045	3,045	3,045	3,045
Dependent Variable	*Lobby_DV*	*LN(AdjLobbyExp)*	*LN(AdjLobbyExp)*	*Lobby_DV*	*LN(AdjLobbyExp)*	*LN(LobbyAdjExp*
Method	Probit	OLS	Tobit	Probit	OLS	Tobit
R-Square	0.213	0.320	0.131	0.610	0.755	0.371

* **, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table VI. Descriptive Statistics for Marginal Value of Lobbying Expenditures

Table VI shows the sample characteristics for the sample of S&P 500 firm-years over the period 1999 to 2006 used to estimate the marginal value of corporate lobbying expenditures. The sample consists of 1,616 firm-years for 333 S&P 500 firms. All statistics are reported in percentage form. ΔX represents the change in X from year $t\text{-}1$ to t. $r_{i,t} - R_{i,t}^B$ is excess return, calculated as a firm's annual return in year t minus the firm's Fama-French (1993) size and book-to-market matched value-weighted portfolio return in year t. Variables other than Lev are scaled by the lagged market value of equity. *LobbyExp* represents firms' annual inflation-adjusted lobby expenditures. *Earn* is earnings before extraordinary items. *Assets* is total assets. *R&D* is research and development expenses. *IntExp* is interest expense. *Div* is common dividends. *NF* is net financing, calculated as the sale of common and preferred stock minus purchase of common and preferred stock plus issuance of long-term debt minus reduction in long-term debt. *Lev* is defined as total debt divided by the sum of total debt and market value of equity.

Variables	N	Mean	Median
$r_{i,t} - R_{i,t}^B$	1,616	6.100	4.734
$LobbyExp_{t-1}$	1,616	0.005	0.001
$\Delta Earn_t$	1,616	1.040	0.617
$\Delta Assets_t$	1,616	9.985	3.079
$\Delta R\&D_t$	1,616	0.020	0.000
$\Delta IntExp_t$	1,616	0.074	0.000
ΔDiv_t	1,616	0.075	0.017
ΔNF_t	1,616	0.258	-0.970
Lev_t	1,616	19.117	14.277

Table VII. Marginal Value of Corporate Lobbying

Table VII reports regression results after estimating the marginal value of lobbying for the sample of S&P 500 firms-years over the period 1999 to 2006. The dependent variable is excess returns, calculated as a firm's annual return in year *t* minus the firm's Fama-French (1993) size and book-to-market matched value-weighted portfolio return in year *t*. *ΔX* represents the change in *X* from year *t-1* to *t*. Each financial variable is scaled by the lagged market value of equity. *LobbyExp* represents firms' annual inflation-adjusted lobby expenditures. *Earn* is earnings before extraordinary items; *Assets* is total assets. *R&D* is research and development expenses. *IntExp* is interest expense. *Div* is common dividends. *NF* is net financing, calculated as the sale of common and preferred stock minus purchase of common and preferred stock plus issuance of long-term debt minus reduction in long-term debt. *Lev* is defined as total debt divided by the sum of total debt and market value of equity. Models estimated using OLS include unreported Fama-French (1997) industry dummies, time dummies, and standard errors robust to heteroskedasticity and allowing for firm-level clustering. Models estimated using fixed-effects include unreported firm-specific intercepts and time dummies. *t*-values are in parentheses below coefficients.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
LobbyExp$_{t-1}$	199.124***	603.956***	232.406***	239.996***	225.936***	188.898**
	(2.850)	(3.900)	(2.840)	(2.920)	(3.120)	(2.480)
ΔEarn$_t$	0.601***	0.542***	0.964***	0.923***	0.591***	0.537***
	(3.420)	(3.530)	(5.320)	(4.140)	(3.350)	(2.990)
ΔAssets$_t$	0.065*	0.044	0.090**	0.079	0.061*	0.075**
	(1.800)	(1.460)	(2.130)	(1.460)	(1.690)	(2.130)
ΔR&D$_t$	1.949	0.187	0.435	0.614	1.929	1.967
	(0.790)	(0.080)	(0.150)	(0.230)	(0.780)	(0.770)
ΔIntExp$_t$	−1.543	−0.680	−1.787	−1.063	−1.575	−1.720
	(−1.270)	(−0.630)	(−1.030)	(−0.550)	(−1.290)	(−1.430)
ΔDiv$_t$	2.378	−0.0322	−0.700	0.922	2.265	2.664
	(1.290)	(−0.140)	(−0.290)	(0.350)	(1.220)	(1.290)
Lev$_t$	−0.403***	−1.189***	−0.486***	−0.384***	−0.399***	−0.380***
	(−7.290)	(−9.240)	(−6.520)	(−4.840)	(−7.220)	(−6.650)

ΔNF_t	0.088 (0.710)	0.162 (1.480)	0.022 (0.480)	0.0.116 (0.700)	0.101 (0.810)	0.057 (0.450)
λ_t				0.089 (0.960)		
Intercept	0.011 (0.350)	na	−0.040 (−0.780)	−0.081 (−1.640)	0.013 (0.410)	0.039 (1.140)
Full Sample?	Yes	Yes	No	No	No	No
Observations	1,616	1,616	987	869	1,596	1,466
FF Ind. Dummies?	Yes	No	Yes	Yes	Yes	Yes
Method	OLS	Fixed-Effects	OLS	Heckman-Probit	OLS	OLS
R-Square	0.139	0.067	0.238	0.099	0.137	0.253

* **, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.