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# Does Delaware law improve firm value? ☆

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## Abstract

I present evidence consistent with the theory that Delaware corporate law improves firm value and facilitates the sale of public firms. Using Tobin's  $Q$  as an estimate of firm value, I find that Delaware firms are worth significantly more than similar firms incorporated elsewhere. The result is robust to controls for firm size, diversification, profitability, investment opportunity, industry, managerial ownership, and unobservable firm heterogeneity. Delaware firms are also significantly more likely to receive takeover bids and be acquired. Results are robust to controls for endogeneity. © 2001 Elsevier Science S.A. All rights reserved.

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## 1. Introduction

Corporate law affects firm value. Its rules determine investors' rights and managers' duties and allocate merger gains. Under standard accounts, when

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these rules reduce agency costs, investors pay more for the firm's securities. When legal rules increase managerial slack and entrench incumbent managers, investors pay less. International variation in legal rules may affect firm value and ownership structure (LaPorta et al., 1999).

Investor protection in U.S. firms varies according to the firm's state of incorporation. Each of the 50 states, along with the District of Columbia, has its own corporate laws and courts. These legal regimes differ because states devote different resources to resolving corporate disputes and sometimes customize legal rules to suit local firms or interest groups. Under the "internal affairs" rule, these differing legal rules matter: firms are governed by the corporate law of the state in which they incorporate, and not the law of the state in which they operate.

Delaware corporate law is the nation's most important. More than 50% of all public firms are incorporated in Delaware, while New York, the state with the second highest share, attracts fewer than 5% of public firms. Delaware's unique attractions for public firms include its rules, courts precedent and political economy. It is the only state with a specialized Chancery Court for resolving corporate law disputes and its laws are relatively certain and well-known. Its rules are quickly updated to respond to firms' changing needs, largely because Delaware collects incorporation fees totaling roughly 20% of state revenues and is therefore dependent on producing corporate law that firms demand (Romano, 1985).

Delaware's dominance has provoked a vigorous debate about whether its corporate law benefits managers or shareholders. Cary (1974) argues that because Delaware is dependent on revenue from incorporations, it caters to managers who influence incorporation decisions. In this view, Delaware produces legal rules that are unjustifiably lax or pro management, creating a national "race to the bottom" in legal rules. For example, Delaware was one of the first states to eliminate managers' mandatory fiduciary duty of care, appraisal rights for dissenting shareholders in public firms, and certain shareholder voting and meeting requirements. In Cary's words, "a pygmy among the 50 states prescribes, interprets and indeed denigrates national corporate policy as an incentive to encourage incorporation within its borders" (Cary, 1974). Because such laws are thought to reduce shareholder wealth, Cary and others argue that the only solution is for Congress to adopt uniform national standards for corporate law (Bebchuk, 1992; Bebchuk and Ferrell, 1999).

By contrast, Winter (1977) argues that Delaware law improves firm value (I use firm value to refer to the value of the cash flows paid to investors, exclusive of any private benefits). In this view, market forces (including competition for capital, products, and corporate control) lead states to provide, and incorporators to select, legal rules that maximize shareholder welfare. Rather than exploiting shareholders, Delaware's famed "laxity" improves firm value

by allowing parties to adopt customized contracts that limit agency costs (Easterbrook & Fischel, 1991).

An alternative view of the debate is that domicile makes no difference. Some consider state law uniform. Others believe differences do not matter because entrepreneurs and managers can eliminate differences between jurisdictions by customizing the firm's securities and charter provisions and by providing substitute governance arrangements (such as management compensation or board structure). A firm's choice of domicile can therefore be considered unimportant and trivial (Black, 1990). This view is consistent with the assumption, common in the literature on firm performance and corporate governance, that state law is homogeneous or uncorrelated with firm performance and therefore not included as a control variable (event studies of takeover legislation are an exception to this assumption of legal homogeneity).

This debate over Delaware is an important matter of public policy: its law governs roughly half of the Fortune 500 firms, more than 60% of all publicly held assets, and most takeover battles. Moreover, if Delaware law reduces shareholder wealth, federal legislation might be required to prevent harm to shareholders (Cary, 1974).

A central question in this debate over Delaware and state competition is empirical: does Delaware law on balance improve or reduce firm value? If Delaware law increases agency costs and allows managers to extract rents, it will reduce firm value; if Delaware law reduces costs, it will improve firm value; if corporate law is uniform or trivial, Delaware incorporation will have no effect on firm value.

Prior research on Delaware law's effect on firm value is inconclusive, however. Because reincorporations are not a random sample of firms, event studies of reincorporating firms do not tell us about the effect of Delaware law on the vast majority of firms that never reincorporate after going public. In addition, major shifts in firm strategy and governance accompany reincorporation (Romano, 1985; Heron and Lewellen, 1998) and may make it difficult to identify the source of any value changes.

This paper takes a different tack, and presents the first large-sample and cross-sectional evidence of the effect of state law on firm value. Using Tobin's  $Q$  as an approximation of firm value, I find that Delaware firms are worth more than similar firms incorporated elsewhere based on a sample of 4,481 exchange-traded U.S. corporations between 1981 and 1996. The effect is economically and statistically significant, and robust to controls for company size, industry, growth opportunities, diversification, financial performance, managerial ownership, and firm-specific effects. This result is consistent with the theory that Delaware law improves firm value.

I then consider how Delaware law might add value. I find that Delaware firms are significantly more likely to receive a takeover bid and to be acquired.

This is surprising in light of the frequent criticism that Delaware takeover law is especially protective of managers. I also find that firms domiciled in states that raise significant barriers to hostile bids are worth significantly less and may receive fewer bids. This suggests that Delaware law facilitates the sale of public firms, thereby improving firm value. Results are robust to a wide variety of controls, including controls for endogeneity and possible selection bias.

This paper extends the literature on firm value and corporate governance in the following ways. First, it provides the first large-sample evidence on firm value and state law in the U.S. Second, the higher valuation and greater likelihood of takeover bids for Delaware firms suggest that corporate law is an important element of security design, though it is not often examined. The association between law, value, and takeover activity persists over decades, even though firms can protect investors by adopting customized charter or governance terms. Such contracting apparently does not compensate for Delaware's advantages. Future studies of firm performance or governance should therefore perhaps include controls for state law. Third, these results suggest that Delaware does not lead in a national "race to the bottom" in the production of corporate law.<sup>1</sup>

The paper is organized as follows. Section 2 reviews prior research on state law and firm value. Section 3 presents the basic finding that Delaware firms are worth more than similar firms incorporated in other jurisdictions. Section 4 considers whether Delaware law improves firm value by facilitating the sale of public firms. Section 5 examines possible selection bias and endogeneity. Section 6 concludes.

## 2. Prior research

Prior research on the effect of state legal rules examines whether a firm's stock price changes in response to news that a firm will reincorporate. No study finds clear evidence that Delaware law reduces firm value, but results are otherwise mixed. Dodd and Leftwich (1980) examine 140 publicly traded firms that reincorporate between 1927 and 1977. They find no evidence of abnormal returns at the announcement of reincorporation, but note that reincorporating firms experience positive returns in the two years prior to the announcement. On the other hand, Netter and Poulsen (1989), Hyman (1979) and Wang (1996) find reincorporating firms experience positive returns. Peterson (1988) finds

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<sup>1</sup>The debate over regulatory competition may also be important for the European Union. In *Centros*, the European Court of Justice recently held that a firm was subject to the corporate law rules of its domicile rather than its place of operation. Though the implications of the decision are uncertain, some believe this may lead to U.S.-style competition whereby member states compete for chartering business by writing legal rules that firms find attractive.

that firms reincorporating to Delaware experience positive returns unless the reincorporation is part of an attempt to increase the firm's defenses against a hostile takeover. Romano (1985) is the most complete, finding that shareholder gains depend on the reason for the move: firms reincorporating as part of a merger and acquisition program experience positive abnormal returns, as does the portfolio of all firms. For some event windows, the portfolio of firms reincorporating for either tax or other reasons also experience significant positive results. Romano also provides an account of Delaware's ability to attract firms. Similarly, Heron and Lewellen (1998) find that reincorporations establishing limits on director liability increase share prices, while others do not.

These event studies suggest that Delaware law does not reduce firm value, but do not provide conclusive evidence of the value of state law. First, the studies generally do not distinguish between firms leaving Delaware and firms entering Delaware, but instead study all reincorporating firms. This could mask important information. Second, reincorporating firms often simultaneously initiate merger and acquisition programs that are associated with positive shareholder returns (Schipper and Thompson, 1983) or adopt antitakeover provisions thought to reduce firm value (Heron and Lewellen, 1998). Because of these confounding events, critics of Delaware law have been unconvinced by event-study evidence.

Third, and perhaps more importantly, because reincorporations are unrepresentative (but undertaken by firms making otherwise significant changes), we cannot infer how Delaware law affects firms that do not reincorporate after going public (and the vast majority of firms do not). If firms only reincorporate to increase firm value, it could be that firms reincorporating to Delaware experience positive returns, but Delaware law is not valuable relative to other states.

By examining evidence of the association between firm domicile and market valuation for public firms, I obtain a large sample and avoid the problems of mixed signals and selection bias that affect event studies.

### **3. Firm value and Delaware law**

This paper tests the hypothesis that Delaware law affects firm value. If investors regularly pay more for assets governed by Delaware law, Delaware firms will be worth more. Similarly, if investors discount the price paid for assets governed by Delaware law, Delaware firms should be worth less. This section examines whether they are.

Below I estimate the relation between firm value and incorporation in Delaware as compared with incorporation in another state. I follow related studies, including LaPorta et al. (1999), Yermack (1996), Lang and Stulz

(1994), Hermalin and Weisbach (1991), and Mørck et al. (1988a) in regressing a set of explanatory governance and financial variables against an estimate of Tobin's  $Q$ .

Tobin's  $Q$  estimates the firm's market value divided by its replacement cost. This ratio represents a firm's investment or growth opportunities, including those added by management and corporate law rules. For the purposes of this study, after controlling for a firm's size, diversification, industry, investment opportunity, and profitability, the difference in Tobin's  $Q$  between Delaware and non-Delaware firms represents the value attributable to Delaware law. Law can thus be seen as an intangible asset that can have either positive or negative value.

By contrast, cross-sectional analysis of shareholder returns is unlikely to reveal law's effect on firm performance. If investors rationally anticipate the impact of Delaware legal rules, they will initially pay more (or less) for Delaware firms so that shareholder returns should not vary by jurisdiction. Consistent with this expectation, Delaware firms do not have different stock price performance, nor do they have different accounting earnings (Romano, 1996; Baysinger and Butler, 1985).

### *3.1. Sample description*

I begin by creating a sample that includes all exchange-traded firms on Compustat's database of industrial firms between 1979 and 1996. To limit survivorship bias, I also include firms in Compustat's research files, which include firms that were acquired or went bankrupt. I omit regulated utilities, banks, and financial firms because the corporate governance of such firms differs due to significant federal regulation and because rules governing the takeovers of such firms are determined by the state in which they operate.

To be included in the sample, firms must have data on assets, sales, stock price, and state of incorporation, and must have data in five different years. To control for the known effects of firm diversification, I also require that firms have Compustat data on the number of business segments for which the firm reports audited annual financial statements. Because corporate law is unlikely to explain extremely high or low valuations, and therefore to minimize any possible selection bias, I also trim observations with Tobin's  $Q$  values in the upper and lower 1% of the sample. Results are not sensitive to these requirements, however. Regression results are similar if I include firms without diversification data, trim no observations, or trim those observations with Tobin's  $Q$  values in the upper and lower 1%, 5%, or 10%. I also estimate the log of Tobin's  $Q$  and obtain similar results. I obtain a final sample of 4,481 firms, representing 47,001 firm years between 1981 and 1996. Regressions contain fewer observations due to missing variables for some observations.

Tobin's  $Q$  estimates are taken from data available on Compustat. The market value of common stock is obtained from the firm's fiscal year-end stock price and shares outstanding. Preferred stock and debt are assumed to have a market value equal to book value. Replacement cost is estimated from the book value of the firm's assets. While more complex estimates of Tobin's  $Q$  are possible, this simple measure produces coefficient estimates whose signs are unbiased and conservative in that they are less likely to produce significant results (Perfect and Wiles, 1994). In addition, I obtain similar results when I use a more complicated estimate of Tobin's  $Q$ , constructed by using a methodology similar to Perfect and Wiles, in a subset of firms for which I have the requisite data.<sup>2</sup>

Because Compustat records only a firm's current state of incorporation, it is necessary to identify firms that reincorporate. Public firms that reincorporate after 1987 were identified through a Lexis search of the proxies and 10-K filings of all public firms. Firm reincorporations between 1981 and 1987 were identified from Moody's Annual Industrial Reports, as collected by Romano (1985) and Comment and Schwert (1995). Data on merger frequency come from Securities Data Corporation's (SDC) Mergers and Acquisitions database. Data on IPOs and underwriters between 1990 and 1997 come from SDC's New Issue database. Standard Industrial Classification (SIC) codes are taken from Compustat. Checking these SIC codes against the historical SIC codes recorded by the Center for Research on Security Prices (CRSP), I find no significant differences in the frequency with which Delaware and non-Delaware firms changed SIC codes in a subsample of 49 firms.

Table 1 summarizes financial characteristics of the sample firms. Delaware firms are more valuable, on average, than firms subject to other corporate laws and have a mean Tobin's  $Q$  that is 0.08 higher than firms incorporated elsewhere. Delaware firms are also larger, more diversified, and somewhat more leveraged—characteristics that are negatively correlated with Tobin's  $Q$ . The differences are statistically significant for both means and medians.

### 3.2. Regression analysis

To examine whether investors pay more for Delaware firms in light of other factors, I estimate least squares regressions, using an approximation of Tobin's  $Q$  as the dependent variable and a dummy variable equal to one when the firm

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<sup>2</sup>It is unlikely that any difference in firm age explains these results. First, Romano (1985) finds that Delaware firms are younger, implying that they may have younger, less depreciated assets. This would introduce a conservative, downward bias on the Tobin's  $Q$  estimates for Delaware firms. Second, I obtain similar results when I examine only IPO firms (presumably of similar age) or mature public firms where age presumably matters less (see Section 5).

Table 1  
 Characteristics of sample firms

Descriptive statistics for a sample of 4,481 exchange-traded firms between 1981 and 1996. The sample includes data on 47,001 firm years. Financial firms and utilities are excluded. Firm financial data come from Compustat. Domicile data come from Compustat, a Lexis search of public proxy statements, and reincorporation data collected by Romano (1985) and Comment and Schwert (1995).

	Sales			Business segments			Debt/capital			Tobin's $Q$	
	Mean	Median	Correlation with Tobin's $Q$	Mean	Median	Correlation with Tobin's $Q$	Mean	Median	Correlation with Tobin's $Q$	Mean	Median
Delaware firms	1,107.8 <sup>a</sup>	153.3 <sup>a</sup>	-0.07	1.74 <sup>a</sup>	1.00 <sup>a</sup>	-0.20	0.46 <sup>a</sup>	0.45 <sup>a</sup>	-0.19	1.73 <sup>a</sup>	1.31 <sup>a</sup>
Other firms	928.2	105.4	-0.05	1.67	1.00	-0.18	0.42	0.41	-0.16	1.65	1.28

<sup>a</sup> Represents a difference between the means (or medians) of Delaware and non-Delaware firms that is significant at the 1% level.

is incorporated in Delaware. I also estimate regressions with individual dummy variables for each incorporation state without changing the result.

The model includes a variety of explanatory variables to control for factors I expect to directly affect Tobin's  $Q$ . I include a firm's return on assets (ROA) as an independent variable in the regression model because I expect a firm's profitability to directly affect its value. I calculate ROA as current-year operating income divided by total assets measured at the close of the prior fiscal year. The model includes the firm's current and prior years' ROA, although the Delaware results are stronger when I omit ROA in unreported regressions.

In addition to current and past profitability, firm value depends on future investment opportunities (Myers, 1977; Smith and Watts, 1992). Following others, I use a firm's research and development expenses (scaled by firm assets) as a proxy for its investment opportunities, and expect it to be positively related to Tobin's  $Q$  (McConnell and Servaes, 1990). I obtain similar results if I instead use capital expenditures as an alternative proxy for investment opportunities.

During the sample period, diversified firms had lower Tobin's  $Q$  values (Lang and Stultz, 1994; Berger and Ofek, 1995). I therefore include a variable that counts the number of business segments for which firms report audited financial statement data in their annual reports. I control for firm size by including the log of the firm's net sales. Using the log of total capital or the

market value of equity as alternative measures of firm size yields similar results. Results are also unchanged if I control for firm debt. Finally, I present results with dummy variables for the firm's two-digit SIC code, though results are similar if I instead control for three- or four-digit SIC codes.

I first estimate a pooled least squares regression, controlling only for incorporation, industry, and year, and find that Delaware firms are worth significantly more than other firms. Delaware firms have Tobin's  $Q$  values 0.074 greater than firms incorporated elsewhere ( $p$ -value 0.001). I then control for the other factors described above and Delaware incorporation is still associated with significantly higher Tobin's  $Q$  (the estimated Delaware coefficient is 0.073,  $p$ -value 0.001). Table 2 reports these OLS estimates with White (1980) robust standard errors to account for potential heteroskedasticity. Other coefficient estimates are generally significant and have the expected sign.

To confirm that Delaware firms are worth more throughout the sample period, I separately estimate the model for annual cohorts of sample firms. I find that Delaware firms are worth more in each year, and significantly more in 12 of the 16 years. Full results for years at the beginning, middle, and final years of the sample are reported in Table 2. Annual estimated coefficients for the Delaware dummy in each year of the sample are summarized in Table 3. Estimates for the annual Delaware coefficient range from a high of 0.14 in 1986 and 1993 to a low of 0.03 in 1989. Significance levels are generally high. The Delaware estimate is positive at the 1% level in seven years, at the 5% level in one year, and at the 10% level in four years. I interpret this as evidence that firms subject to Delaware law have been worth more than other firms since at least the early 1980s.

The valuation difference associated with Delaware firms is also economically meaningful. For example, in the 1996 cohort, Delaware incorporation is associated with an increase in Tobin's  $Q$  of 0.07. This result translates into an approximately 5% greater market value, or an additional \$12 million for Delaware firms (based on the median Tobin's  $Q$  of 1.49 and market value of approximately \$225 million). When I trim observations with Tobin's  $Q$  values in the upper or lower 10% on the grounds that corporate law is unlikely to explain extreme valuations, the estimated difference in pooled regressions is lower, but still economically meaningful (roughly 1–2%).

The Delaware coefficient does not appear to change significantly over time. In the pooled estimate, I estimate the model with interaction terms between Delaware incorporation and the dummy variables for each year, and no interaction term is significantly different from zero. Further, a joint test fails to reject the hypothesis that the interaction terms are all equal.

Finally, because Tobin's  $Q$  is likely to be affected by unobserved firm heterogeneity, I also estimate fixed-effects models. Hausman and Taylor (1981) state that the fixed-effects framework represents a common unbiased method of

Table 2  
Delaware incorporation and firm value<sup>a</sup>

Regression estimates of the association between Tobin's  $Q$  and Delaware incorporation. The pooled sample consists of 47,001 annual observations of 4,481 exchange-traded firms between 1981 and 1996. Utility and financial firms are excluded. The dependent variable is an estimate of Tobin's  $Q$  at the end of each fiscal year. Delaware incorporation is a dummy variable set equal to one if the firm is incorporated in Delaware and therefore subject to Delaware corporate law. The first two columns present OLS estimates for the pooled sample. Column 3 presents estimates from a fixed effects model, which assigns a unique intercept to each company. Columns 4–6 present results from annual cohorts at the beginning, middle, and end of the sample period. Firm financial data come from Compustat. Domicile data come from Compustat, a Lexis search of public proxy statements, and reincorporation data collected by Romano (1985) and Comment and Schwert (1995). OLS estimates are White (1980) robust.

Dependent variable: <i>Tobin's Q</i>						
Variable	OLS estimates	OLS estimates	Fixed-effects estimates	1981 OLS estimates	1988 OLS estimates	1996 OLS estimates
Delaware incorporation	0.074*** (0.010)	0.073*** (0.011)	0.140*** (0.011)	0.112*** (0.039)	0.073** (0.033)	0.071* (0.042)
Firm size (log of sales)		-0.084*** (0.007)	-0.040*** (0.003)	-0.131*** (0.019)	-0.094*** (0.011)	-0.072*** (0.015)
Number of business segments		-0.054*** (0.006)	0.00 (0.01)	-0.008 (0.013)	-0.005 (0.015)	-0.076*** (0.022)
R&D expense/assets		3.221*** (0.343)	4.389*** (0.067)	6.034*** (0.964)	4.675*** (0.685)	2.494** (1.066)
Return on assets (current year)		0.395** (0.189)	0.466*** (0.016)	0.585 (0.910)	1.614*** (0.322)	0.691*** (0.269)
Return on assets (prior year)		0.001 (0.001)	0.002 (0.002)	0.867** (0.364)	-0.152 (0.096)	-0.044*** (0.013)
Annual dummies	Yes	Yes	Yes			
Industry dummies	Yes	Yes	Firm dummies	Yes	Yes	Yes
Sample size	47,001	39,515	39,515	1,460	2,394	3,264
$F$ -statistic	85.45	136.23	4,541	9.53	13.15	14.59
( $p$ -value)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
$R^2$	0.11	0.21	0.09	0.29	0.25	0.21

<sup>a</sup> Significant at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) level.

controlling for omitted variables in a panel dataset. Therefore, Table 2 also includes coefficient estimates for a firm fixed-effects model that allows a different intercept for each company. Delaware incorporation is positive and highly significant (coefficient 0.14;  $p$ -value less than 0.01) and economically

Table 3

Annual estimates of the association between Delaware law and Tobin's  $Q$ 

This table reports OLS estimates of the association between Tobin's  $Q$  and Delaware incorporation for 4,481 exchange-traded firms between 1981 and 1996. Each row reports the estimated Delaware coefficient and  $p$ -value for the cohort of sample firms in a given year. The model also includes controls for firm size, diversification, growth opportunities and current and lagged return on assets. The estimate reported in columns 1 and 2 also include controls for two-digit SIC code dummies. The estimates reported in columns 3 and 4 use industry-adjusted values in the model. Tobin's  $Q$  estimates and independent variables in these columns are calculated as the difference between the firm's value and the industry average for the firm's three-digit SIC code. Delaware incorporation is a dummy variable set equal to one if the firm is incorporated in Delaware and therefore subject to Delaware corporate law. Firm financial data come from Compustat. Domicile data come from Compustat, a Lexis search of public proxy statements, and reincorporation data collected by Romano (1985) and Comment and Schwert (1995).  $p$ -Values are calculated using White (1980) robust standard errors.

Annual cohort	Regressions on Tobin's $Q$		Regressions on industry-adjusted Tobin's $Q$		$n$
	Delaware coefficient	$p$ -value	Delaware coefficient	$p$ -value	
1981	0.11	0.00	0.09	0.01	1,460
1982	0.07	0.08	0.06	0.13	1,563
1983	0.11	0.01	0.10	0.02	1,676
1984	0.12	0.00	0.11	0.00	1,857
1985	0.12	0.01	0.11	0.00	2,000
1986	0.14	0.00	0.12	0.00	2,115
1987	0.04	0.24	0.05	0.21	2,340
1988	0.07	0.03	0.07	0.02	2,394
1989	0.03	0.45	0.03	0.48	2,381
1990	0.09	0.07	0.08	0.03	2,368
1991	0.05	0.27	0.04	0.40	2,469
1992	0.13	0.00	0.12	0.00	2,703
1993	0.14	0.00	0.12	0.00	2,950
1994	0.07	0.06	0.07	0.03	3,237
1995	0.04	0.36	0.06	0.15	3,364
1996	0.07	0.10	0.06	0.10	3,264
Pooled sample	0.07	0.00	0.07	0.00	39,515

meaningful. Results are similar for both the within-firms and between-firms estimators, and in each case significant at the 1% level.

I interpret these results as evidence that investors pay more for firms governed by Delaware law, controlling for a wide range of variables, including firm fixed effects.

### 3.3. Other controls

I now examine whether the Delaware result is robust to alternative industry controls and controls for managerial ownership. As an alternative to

controlling for industry effects by using dummy variables for SIC codes, I construct an industry-adjusted measure of Tobin's  $Q$  by calculating the difference between the firm's Tobin's  $Q$  and its industry mean, using the average Tobin's  $Q$  of the firm's three digit SIC code (McConnell and Servaes, 1990). I similarly calculate the differences between the independent variables and their industry mean. Using these industry-adjusted values in the estimates, Delaware firms are still worth significantly more. In the pooled sample, the estimated Delaware coefficient is 0.07 ( $p$ -value 0.001). In regressions involving annual cohorts, the Delaware coefficient is significantly positive in 11 of the 16 individual years, ranging from a high of 0.12 in 1986, 1992, and 1993 to a low of 0.03 in 1989 (see Table 3). The Delaware coefficient is significant at the 1% level in six years, at the 5% level in four years, and at the 10% level in one year. The sign and significance levels of the other variables in the estimate are similar to those in Table 2. Finally, I also estimate a fixed-effects model with separate dummy variables for every four digit SIC code, with similar results. I interpret this as evidence that the Delaware result is robust to alternative methods of controlling for industry.

Tobin's  $Q$  is also related to managerial ownership (Mørck et al., 1988a; McConnell and Servaes, 1990). However, due to data restrictions, prior regressions do not control for managerial ownership. This omission should not be a problem since managerial ownership is not correlated with Delaware incorporation (Baysinger and Butler, 1985; Choi et al., 1989) and I present firm and industry fixed-effects estimates to control for omitted variables (Hausman and Taylor, 1981). However, to assure that the Delaware finding is robust to controls for managerial ownership, I reestimate the model for a subsample of 349 Fortune 400 firms between 1984 and 1991 for which I have data on managerial ownership.<sup>3</sup> I estimate both pooled OLS and fixed-effects models for this subsample, with and without controls for managerial ownership (see Table 4). Importantly, adding controls for managerial ownership does not change the size or significance level of the estimated Delaware coefficient or the  $R^2$ . Delaware firms are worth more (the estimated Delaware coefficient is 0.07 in the pooled OLS estimates and 0.10 in the fixed-effects estimates, each significant at the 1% level). Managerial ownership is positively (and its square negatively) related to Tobin's  $Q$ . A random-effects model controlling for managerial ownership yields a Delaware estimate of 0.16, significant at the 1% level. I interpret this as evidence that the Delaware result is robust to controls for managerial ownership and unobserved firm heterogeneity.

In unreported regressions, I find that Delaware law is also valuable relative to states likely to produce good law. I find that firms headquartered in states likely to enjoy economies of scale in production of corporate law, due to stores of precedent and efficient court systems (Klausner, 1995), or states that quickly

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<sup>3</sup>I am grateful to David Yermack for sharing this data.

Table 4  
 Estimates of Delaware law's impact on firm value controlling for managerial ownership<sup>a</sup>

This table presents regression estimates of the association between Delaware incorporation and firm value. The sample includes 349 Fortune 400 firms between 1984 and 1991. The dependent variable is an estimate of Tobin's  $Q$ . Delaware incorporation is a dummy variable set equal to one for firms incorporated in Delaware and therefore subject to Delaware corporate law. Columns 1 and 2 report pooled OLS estimates. Columns 3–5 report fixed-effects estimates in a model that allows separate intercepts for each firm. Domicile data come from Compustat, a Lexis search of public proxy statements, and reincorporation data collected by Romano (1985) and Comment and Schwert (1995). Ownership data are from Yermack (1996). Firm financial data are from Compustat. OLS estimates are White (1980) robust.

Dependent variable: <i>Tobin's Q</i>					
Variable	Pooled OLS estimates	Pooled OLS estimates	Fixed-effects estimates	Fixed-effects estimates	Fixed-effects estimates
Delaware incorporation	0.07*** (0.02)	0.07*** (0.02)	0.10*** (0.03)	0.10*** (0.03)	0.10*** (0.03)
Director and officer ownership		-0.17 (0.25)		0.72*** (0.09)	1.36*** (0.23)
Director and officer ownership squared		0.43 (0.41)			-1.11*** (0.37)
Firm size (log of sales)	-0.12*** (0.02)	-0.13*** (0.02)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)
Number of business segments	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)
R&D expense/assets	4.97*** (0.63)	4.98*** (0.63)	3.22*** (0.34)	3.52*** (0.34)	3.52*** (0.34)
Return on assets (current year)	4.17*** (0.46)	4.16*** (0.46)	4.80*** (0.22)	4.70*** (0.21)	4.67*** (0.21)
Return on assets (prior year)	0.25 (0.43)	0.25 (0.43)	0.72*** (0.20)	0.57*** (0.20)	0.52*** (0.20)
		Industry dummies	Firm dummies	Firm dummies	Firm dummies
Year dummies	Yes	Yes	Yes	Yes	Yes
Sample size	2,538	2,538	2,538	2,538	2,538
$F$ -statistic	59	57	1,263	1,204	1,128
( $p$ -value)	0.001	0.001	0.001	0.001	0.001
$R^2$	0.57	0.57	0.42	0.44	0.44

<sup>a</sup> Significant at the 1% (\*\*\*) level.

Table 5  
Delaware market share

Descriptive statistics on Delaware's share of exchange-traded public firms and IPOs. Firm data, current domicile, exchange, and industry are from Compustat's industrial and research files. Domicile data come from Compustat, a Lexis search of public proxy statements, and data collected by Romano (1985) and Comment and Schwert (1995). Data on initial public offerings and venture capital investment come from Securities Data Corp. Data on IPOs with leveraged buyout investment come from a Goldman Sachs report.

Delaware's share of:	1981	1988	1996
<i>Sample firms</i>	44.3%	53.3%	55.8%
By exchange			
NYSE	49.4	58.9	62.2
NASDAQ	34.7	48.2	52.0
AMEX	46.9	53.6	53.5
By industry			
Mining, construction	47.1%	67.4%	65.8%
Light manufacturing	45.5	55.4	57.1
Heavy manufacturing	40.6	48.6	52.2
Transport. and communication	51.1	51.9	58.8
Wholesale, retail trade	45.9	51.7	54.5
Finance	46.2	46.2	45.5
Services (SIC 7)	42.5	53.3	54.0
Services (SIC 8)	68.2	66.4	69.8
<i>N</i> =	1,783	2,680	3,427
<i>Initial public offerings</i>			
All IPOs	29% ( <i>n</i> = 111)	33.7% ( <i>n</i> = 211)	61.4% ( <i>n</i> = 777)
Venture capital-backed IPOs	24.7% ( <i>n</i> = 85)	42.6% ( <i>n</i> = 47)	66.6% ( <i>n</i> = 267)
LBO fund-backed IPOs	—	—	81.1% ( <i>n</i> = 37)

respond to legal innovations (Romano, 1985), are worth more when incorporated in Delaware.

There is some evidence that the Delaware effect is decreasing in firm size. When I interact the dummy variable for Delaware incorporation with the log of the firm's sales, the interaction term is negative and significant (estimated coefficient  $-0.03$ ;  $p$ -value 0.001) and the Delaware incorporation dummy is larger (estimated coefficient 0.22;  $p$ -value 0.001) in pooled regressions. In regressions of annual cohorts, the interaction term is significantly negative in 6 years.

### 3.4. *Evidence from market actors*

If Delaware law improves firm value, then entrepreneurs, shareholders, and managers should prefer Delaware incorporation, other things being equal. I therefore examine Delaware's market share among the 4,481 sample firms. As summarized in Table 5, the flow of assets into Delaware is dramatic. Delaware's share of sample firms on major stock exchanges increases from roughly 44% in 1981 to 56% in 1996. Further, its share of firms by industry increases in every one-digit SIC industry, with one exception. This could reflect assets moving into a higher-value jurisdiction.

If Delaware law is valuable, IPO firms should incorporate there. Pre-IPO shareholders bear agency costs and have incentives to select a legal regime that reduces agency costs (Jensen and Meckling, 1976) and reduces managerial entrenchment once ownership is dispersed (Grossman and Hart, 1988; Harris and Raviv, 1988). As summarized in Table 5, Delaware's share of 1996 IPOs is 64%, up from 36.5% in 1981. Consistent with this, Romano (1985) finds that most firms that reincorporate to Delaware do so in preparation for an initial public offering. Venture capitalists and leveraged buyout specialists, who are sophisticated investors and repeat players in the capital markets, incorporate in Delaware between 70% and 80% of the time.

### 3.5. *Discussion of the Delaware effect*

Delaware firms are worth more than similar firms subject to other legal rules. I therefore reject the claim that Delaware law on balance reduces firm value by facilitating managerial rent seeking. Delaware law might not be optimal, but it appears to improve value relative to other jurisdictions. This finding is consistent with earlier findings of positive abnormal returns upon reincorporation for firms that do not add takeover defenses (Romano, 1985; Peterson, 1988)<sup>4</sup>. I also reject claims that state law is uniform or trivial.

The fact that Delaware firms have been persistently more valuable raises the question of why other states do not compete for and reduce the Delaware premium. Several answers are suggested by the literature on state competition. First, only Delaware is so reliant on incorporation fees that it can credibly commit to respond to the changing needs of firms (Romano, 1985). Only Delaware stands to lose a meaningful fraction of its revenues if it fails to adopt laws firms demand.

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<sup>4</sup> Recall that Delaware firms have similar accounting results, but higher Tobin's  $Q$  and stock price (Romano, 1985; Peterson, 1988; Wang, 1996). This suggests that market prices reveal information not captured in accounting data. For instance, investors expect more frequent merger premiums in Delaware firms. This would produce higher Tobin's  $Q$  values, even given similar accounting earnings. Moreover, accounting data are noisy and do not decline following antitakeover statutes that reduce stock price (Garvey and Hanka, 1999).

Second, while other states might (and sometimes do) imitate Delaware statutes, it is unlikely that they can duplicate the expertise of Delaware's unique courts or its store of precedent (Klausner, 1995). Delaware has a specialized court for business disputes, whose judges are appointed from the corporate bar and are familiar with complex transactions. Delaware Chancery Court judges are regularly exposed to complex cases, which provides them with valuable training. In Delaware, these judges are especially important because they also decide factual questions, in addition to legal questions. By contrast, no other state has a specialized business court: they instead allocate shareholder claims to elected judges, many of whom have little experience with corporate law and transactions (Black, 1990). Factual questions in other states are decided by juries, whose decisions are unpredictable. The absence of a specialized corporate court creates delay and uncertainty, and can increase agency costs if the judges are therefore less able to deter misdeeds or managers avoid profitable but risky opportunities. However, reformers in other states that seek to centralize business litigation face public choice obstacles. Pennsylvania's recent attempts to create a business-law court, for instance, were successfully opposed by non-urban lawyers who feared that a business court would shift litigation to an urban center and reform attempts failed.<sup>5</sup>

Finally, as discussed in Section 4.1, Delaware's unique political economy insulates its legislature from the lobbying of firms subject to takeover bids, while many other states have adopted more severe antitakeover legislation thought to reduce shareholder wealth.

While these reasons may explain why other states have not eliminated the valuation difference, they do not explain why firms have not eliminated valuation differences through security design or substitute governance features. One reason might be that Delaware's courts and political economy are valuable and impossible to replicate if a firm incorporates in another state. Agency costs in public firms might also prevent optimal adjustments. The question of how Delaware law might add value is taken up in the next section.

#### **4. The value of Delaware law**

Why are Delaware firms worth more? Romano (1985) and Klausner (1995) argue that Delaware's large store of precedent reduces transaction costs and uncertainty about legal liability. Delaware's takeover law is also said to be especially mild (Black and Gilson, 1995; Romano, 1987) and to improve firm value by reducing managerial entrenchment. Others claim that Delaware's expert judiciary protects minority shareholders.

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<sup>5</sup>I am grateful to Ed Rock for this information.

In this section, I present evidence consistent with the theory that Delaware law encourages takeover bids and facilitates the sale of public firms by reducing the cost of acquiring a Delaware firm. This theory is a specific case of the general hypothesis that Delaware law lowers transaction costs.

#### *4.1. The sale-of-the-firm hypothesis*

Takeover bids benefit target shareholders, who typically receive a 30–40% takeover premium (Jarrell et al., 1988). If Delaware law lowers acquisition costs and facilitates the sale of public firms, Delaware firms should attract more takeover bids. More frequent bids should in turn improve firm value by increasing the frequency of merger premia and increasing managers' incentives to improve share price.

Delaware law might either increase the probability that a given bid will be successful or reduce the cost of making a bid. Either effect would increase the expected net benefit of a bid for Delaware firms. Note also that if costs are lower, bids would be more frequent, regardless of whether a takeover is motivated by agency cost reduction, operational synergies, or bidder hubris.

Several theories suggest that Delaware law reduces acquisition costs and encourages takeovers. The first reason is technical: Delaware takeover law raises fewer obstacles to hostile bids than in other states. Delaware's takeover statute raises only minor barriers to hostile acquisitions and its passage did not reduce shareholder wealth (Jahera and Pugh, 1991). Moreover, Delaware law prevents managers from resisting a takeover on the grounds that it threatens non-shareholders—something 29 other states explicitly authorize managers to do. Delaware default law also imposes the shortest delay on hostile bids of all states, thus encouraging bidders to make hostile bids (Coates, 1999). Finally, Delaware law may also reduce acquisition costs by providing relatively clear precedent and by occasionally prohibiting extreme defensive tactics. Other state courts do not limit managerial resistance in this fashion. Thus, the substance of Delaware corporate law is relatively pro-bidder.

The second reason that Delaware law is relatively pro-takeover is based on political economy: firms that incorporate in Delaware do not operate there. Delaware firms have no Delaware operations and no Delaware employees and therefore lack local political clout. When these firms become targets of hostile bids, they are unable to win entrenching legislation.

The absence of local Delaware employees of public firms is especially important because target managers typically win entrenching legislation from state legislators by arguing that a takeover will reduce local employment levels. Because Delaware targets cannot claim that entrenching legislation is necessary to protect Delaware employees, Delaware legislators are less likely to pass entrenching laws. Similarly, Delaware judges do not face claims that hostile

bids reduce local employment levels, and may thus be less likely to entrench incumbent managers.

By contrast, large firms in other states can and often do use their clout to secure tailor-made legislation to defeat hostile bids (Romano, 1987). When Greyhound, an Arizona firm, feared a takeover, the Arizona legislature called a special session and passed entrenching legislation. In the words of one state representative, “Greyhound said ‘Jump’ and we said ‘How high?’” (Roe, 1993). Judges in other states are also elected rather than appointed and may tend therefore to favor targets out of concern that takeovers reduce local employment and hence voter support.

In addition, the high concentration of potential targets in Delaware makes pro-bidder lobbying efforts worthwhile in Delaware. If entrenching laws reduce bidders’ profits, bidders may lobby for pro-takeover laws (Miller, 1998). However, given that targets are difficult to identify in advance and that relatively few potential targets are located in other states, pro-bidder lobbying efforts are less likely outside of Delaware.

In short, the political economy argument for Delaware’s relatively pro-takeover stance is threefold. First, because Delaware has little local industry, it resists entrenching legislation. Second, firms incorporating in Delaware limit managers’ ability to win entrenchment through political means. Third, bidders have a greater incentive to oppose entrenching legislation in Delaware because so many potential targets incorporate there. Delaware’s reliance on incorporation fees also allows it to credibly commit to produce laws that incorporators value (Romano, 1985).

#### 4.2. *The evidence*

I now test the hypothesis that Delaware law improves firm value, facilitates the sale of public firms, and makes takeover bids more likely.<sup>6</sup> I examine the

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<sup>6</sup>This section examines Delaware law’s affect on the likelihood a firm will receive a bid, but does not examine the likelihood a firm will, *make* a bid; state law does not generally regulate a firm’s bidding behavior. I also do not examine the merger premium received by Delaware shareholders, but focus instead on the hypothesis that frequent takeover bids improve firm value. In simple tests using SDC data on merger premia, I find that the premiums received by Delaware shareholders are no different than those received by shareholders in other states. Delaware targets receive on average a 45.6% premium over the stock price four weeks earlier versus 47.3% received by shareholders in non-Delaware firms ( $p$ -value 0.83). Similar results obtain in unreported regressions, controlling for industry, year and state of incorporation. However, SDC premia data are very sparse, so I am reluctant to rely on these results. Initial bids appear to be lower for Delaware firms, but are perhaps later topped or raised. Even if merger premia *were* lower for Delaware firms, this would still be consistent with the claim that the frequency of takeover bids improves firm value. In theory, entrenching laws can improve firm value by increasing merger premia (DeAngelo and Rice, 1983), but in practice, appear to reduce firm value, perhaps since targets already capture the surplus (Jensen and Ruback, 1983).

Table 6

Univariate comparison of the frequency of takeover bids for Delaware firms<sup>a</sup>

This table examines the frequency of takeover bids for firms incorporated in Delaware compared with firms incorporated elsewhere. Rows 1 and 2 examine bids for the cohort of all firms public in 1995. Rows 3 and 4 examine only sample firms public in 1981 and still public at year-end in 1995. A difference in the frequency of takeover bids for these mature firms is unlikely to result from a selection bias effective when they went public years ago. Domicile data come from Compustat, a Lexis search of public proxy statements, and data collected by Romano (1985) and Comment and Schwert (1995). Data on bids come from Securities Data Corporation's Merger and Acquisition database as of July 1, 1998.

	Percent of firms receiving a bid	Percent of firms acquired	Number of firms
<i>Public firms</i>			
Delaware firms	20.11***	12.31***	1,974
Other firms	14.40	8.57	1,563
<i>Mature Firms</i>			
Delaware firms	18.42**	10.99	619
Other firms	13.88	8.70	598

<sup>a</sup> Difference in means significant at the 1% (\*\*\*) and 5% (\*\*) level.

cohort of public firms from 1995 and identify firms that became targets of bids by July 1, 1998. I also examine bid frequency among recent IPOs and among firms that have been public since 1981. In unreported regressions, I examine cohorts of public firms from 1985 and 1990 and find similar results.

Consistent with the theory that Delaware law facilitates the sale of public firms, Delaware firms are more likely to receive bids than other firms. In univariate comparisons summarized in Table 6, I find that Delaware firms are significantly more likely to receive at least one bid (20% vs. 14%; significant at 1%). These frequencies are similar to those observed in other cohorts of public firms (Berger and Ofek, 1996; Ambrose and Megginson, 1992; Pound, 1987). Delaware firms are also significantly more likely to be acquired. Similar results obtain when takeover likelihood is expressed as a percentage of all public firms, rather than as a percentage of firms in each state. The Delaware firms represented 11% of 1995 sample firms that were targets, while firms in other states represented only 6% of all sample targets.

To control for other factors that can affect takeover bids, I also estimate a logit model for whether the firm received a takeover bid, controlling for factors previously identified as related to takeover probability (Palepu, 1986; Berger and Ofek, 1996), such as firm size (log of assets), profitability (return on assets), leverage (debt to total capital), and the market/book ratio. The firm's

profitability and Tobin's  $Q$  value are included on the grounds that low-value firms may attract bids (Hasbrouck, 1985; Mørck, et al., 1988b; Berger and Ofek, 1996). To account for the possibility that Tobin's  $Q$  is endogenous in this equation, I estimate two-stage estimates without affecting results (see Section 5.1). I also include two-digit industry dummies as well as dummy variables for incorporation in Delaware or a state with legislation that entrenches management (see Section 4.3).

I do not control for poison pills. Because managers are free to adopt a poison pill at any time (even after a bid has been made), rational bidders and investors will expect a poison pill in every firm. Firms that lack poison pills will simply adopt one following a bid. Thus, the actual adoption of a pill will not reduce shareholder wealth or deter bids (Comment and Schwert, 1995), but this is likely because its effect will have been anticipated and not because pills are harmless.

Following Palepu (1986) and Ambrose and Megginson (1993), I focus on the receipt of a takeover bid rather than a completed acquisition as a proxy for takeover activity. Results are similar, however, when I instead use actual acquisitions.

In the presence of these controls, I find that Delaware incorporation is positively related to the likelihood of a bid and the effect is significant at the 1% level. In column 1 of Table 7, I control only for incorporation, size, and Tobin's  $Q$ . In column 2, I present the results of the full model. Like Berger and Ofek (1996), I find that acquisition likelihood is negatively related to size and  $Q$ , and positively related to leverage. The size effect is not significant in this estimate, however. Consistent with prior studies, the predictive power of the model is not high, however. In unreported regressions, I also include controls for diversification and managerial ownership for a subset of firms for which I have ownership data, with no change in the sign or significance of the estimated Delaware coefficient.<sup>7</sup> I interpret these results as evidence that Delaware firms are more likely to receive bids, controlling for factors thought to affect acquisition likelihood.

The joint finding that Delaware firms are both more valuable and receive more bids is consistent with the theory that Delaware law reduces the cost of acquiring Delaware firms, thereby improving firm value. Delaware firms are also somewhat more leveraged (see Table 1), consistent with the theory that managers use more debt when faced with a threat that the firm will be taken over (Berger et al., 1997; Garvey and Hanka, 1999).

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<sup>7</sup>I also find that Delaware incorporation is associated with greater takeover activity for recent IPOs (in unreported regressions). I use a sample of 1,384 firms that SDC records as having gone public between 1900 and 1997, representing 3,414 firm years. Controlling for variables as above, as well as insider ownership, Delaware incorporation is significantly positively related to the likelihood of a bid, while incorporation in a protective state significantly reduces the likelihood of a bid.

Table 7

Logistic regressions estimating the association between takeover bids and Delaware corporate law<sup>a</sup>

Regression coefficients estimating the association between Delaware law and the likelihood a firm would receive at least one bid. The variable “Delaware firm” is a dummy variable set equal to one if the firm is incorporated in Delaware and therefore subject to Delaware corporate law. Columns 1 and 2 examine the likelihood of takeover bids among 3,529 sample firms that are exchange-traded in 1995. Columns 3 and 4 report the results of simultaneous estimates to control for the endogeneity of firm value and likelihood of incorporation. Tobin’s  $Q$  is first estimated as in Table 2 and estimated values for Tobin’s  $Q$  are then used in place of the firm’s actual Tobin’s  $Q$ . Columns 4 and 5 examine takeover bids among 1,217 firms that are public in 1981 and still public in 1995. The domicile of these firms is likely to be fixed and differences in the frequency of takeover bids for these mature firms is unlikely to result from a selection bias effective when they went public years ago. Firms incorporated in Massachusetts, Ohio, and Pennsylvania are considered to be subject to antitakeover laws that protect managers. Firm financial data come from Compustat. Domicile data come from Compustat, a Lexis search of public proxy statements, and reincorporation data collected by Romano (1985) and Comment and Schwert (1995).

	1995 firms		1995 firms two-stage estimates		1995 firms public since 1981	
Delaware firm	0.42*** (0.10)	0.35*** (0.10)	0.38*** (0.10)	0.30*** (0.10)	0.37** (0.16)	0.28* (0.17)
Log of assets	-0.03 (0.02)	-0.04 (0.03)	0.01 (0.03)	0.00 (0.04)	-0.05 (0.04)	-0.05 (0.05)
Tobin’s $Q$	-0.19*** (0.04)	-0.17*** (0.04)	-0.13 (0.10)	-0.07 (0.09)	-0.22** (0.10)	-0.20* (0.11)
Return on assets		-0.04 (0.10)		-0.5 (0.15)		-0.46 (0.87)
Leverage		0.69*** (0.20)		0.83*** (0.19)		1.18*** (0.33)
Incorporation in protective state		-0.23 (0.21)		-0.26 (0.21)		-0.39 (0.38)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	3,529	3,529	3,363	3,363	1,217	1,217
$F$ -stat/likelihood ratio ( $p$ -value)	174	187	60	79	26	39
Pearson chi-square	0.0001	0.001	0.0001	0.0001	0.005	0.001
	0.31	0.36	0.50	0.50	0.43	0.46

<sup>a</sup> Significant at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) level. Hosmer-Lemeshow goodness-of-fit tests fail to reject the hypothesis that each logit model is a good fit.

As in other studies, I find that takeover probability is decreasing in Tobin’s  $Q$ , perhaps because high-value firms are less likely to receive a disciplinary bid. To explore the motivation for the bids that Delaware receive, I separately estimate the model for firms that have performed poorly relative to their

industry peers. Poorly performing firms might be more likely to receive disciplinary bids, while firms that have performed relatively well might be more likely to receive other bids. I consider firms with industry-adjusted Tobin's  $Q$  values below the median to have performed poorly, and firms with industry-adjusted Tobin's  $Q$  values above the median to have performed well. In unreported regressions, I find that Delaware firms are significantly more likely to be taken over in each subset ( $p$ -values significant at 5% level). I interpret this as evidence that Delaware law encourages bids for both disciplinary and other reasons. Consistent with Agrawal and Jaffe (1999) and Comment and Schwert (1995), however, Tobin's  $Q$  is insignificant in simultaneous estimates (reported in Section 5.1).

#### 4.3. Evidence from states with severe antitakeover statutes

If Delaware law facilitates the sale of public firms, variation in firm value should be related to the variation in state antitakeover laws in that firms covered by significant antitakeover laws should have lower Tobin's  $Q$  and receive fewer bids. Although variation in state takeover laws is difficult to quantify given the variety of strategies employed by different states, I examine Tobin's  $Q$  and bid frequency for firms incorporated in Pennsylvania, Ohio, and Massachusetts. Each of these states allows management to resist bids that threaten to harm employees or other firm constituencies and, in 1990, passed takeover laws that appear to have significantly increased bidders' costs. Pennsylvania and Ohio require unsuccessful bidders to disgorge their profits on stock purchases, thereby increasing the cost of making a bid (Collins et al., 1993; Szewczyk and Tsetsekos, 1992). Massachusetts requires all firms to adopt staggered boards, which can delay hostile acquisitions for two annual meetings and significantly reduce shareholder wealth (Daines, 2001a).

As predicted, firms incorporated in these states appear to have lower Tobin's  $Q$ , though the results are sometimes sensitive to the method of estimation. In Table 8, I report results from regressions controlling for state-specific effects by creating separate datasets for firms physically located in each of the three states (because the vast majority of all firms incorporate either locally or in Delaware). I estimate both pooled OLS and fixed-effects models for each of these datasets. Both Pennsylvania and Massachusetts firms are worth less if incorporated in their home state (significant at the 1% level). Ohio firms incorporated at home are worth insignificantly more in the OLS model, but less in a fixed-effects model ( $p$ -value of 0.11).

Firms incorporated in these states also receive fewer takeover bids in univariate comparisons. As summarized in Table 9, firms in these states are significantly less likely to receive a bid than firms in other states (12% of firms in these states receive bids, compared to 20% of firms in Delaware and 15% of firms in other states). Cochran-Armitage trend tests are significant at the 1%

Table 8  
 Estimated Delaware coefficient for firms in states with substantial takeover protection<sup>a</sup>

This table examines the market valuation of exchange-traded firms in states with substantial takeover protection between 1990 and 1996. In 1990, Massachusetts, Ohio, and Pennsylvania adopted legislation designed to deter takeover bids. Row 1 examines the value of Delaware incorporation for firms whose executive headquarters are in Massachusetts. Because sample firms incorporate either in Delaware or their home state, the Delaware coefficient thus estimates the marginal value associated with Delaware corporate law. Column 1 reports the pooled OLS estimates of the Delaware coefficient in a model that controls for firm size, diversification, growth opportunities, current (and lagged) return on assets, and dummy variables for the year and two-digit SIC code. Standard errors are White (1980) robust. Column 2 reports the estimated Delaware coefficient for a fixed-effects estimate that includes dummy variables for each unique firm and the year, as well as controls for firm size, diversification, growth opportunities, and current (and lagged) return on assets. Rows 2 and 3 examine the value of Delaware incorporation for firms whose executive headquarters are in Ohio and Pennsylvania. Domicile data come from Compustat, a Lexis search of public proxy statements, and data collected by Romano (1985) and Comment and Schwert (1995).

For firms located in	Pooled OLS estimate of the Delaware coefficient	Fixed-effects estimate of the Delaware coefficient	<i>N</i>
Massachusetts	0.26*** (0.08)	0.62*** (0.09)	1,121
Ohio	-0.02 (0.05)	0.09 (0.06)	815
Pennsylvania	0.16** (0.08)	0.25*** (0.07)	980

<sup>a</sup> Significant at the 1% (\*\*\*) and 5% (\*\*) level.

level, indicating that bid frequency decreases as state law erects barriers to hostile bids. When I control for other factors associated with takeover frequency, the evidence is more mixed but largely consistent. Incorporation in these states is always negatively related to bid likelihood, but the effect is insignificant (see Table 7). For firms public since at least 1981, the effect is significantly negative only for firms incorporated in Pennsylvania (results not reported).

#### 4.4. Discussion

Delaware firms are thus more likely to receive a takeover bid and to be taken over, controlling for other factors associated with takeover likelihood. This is consistent with the theory that Delaware law improves firm value by facilitating the sale of public firms. It might also explain why some firms do not incorporate in Delaware, even though doing so can create value. Managers

Table 9  
Takeover frequency in states with substantial takeover protection<sup>a</sup>

This table examines the frequency and likelihood of bids for firms incorporated in states with substantial takeover protection as compared with firms incorporated elsewhere. In 1990, Massachusetts, Ohio, and Pennsylvania adopted legislation designed to deter takeover bids. Panel A compares bids for firms domiciled in these states with firm domiciled elsewhere. Rows 1–3 examine bids for the cohort of all firms public in 1995 and compares firms in Massachusetts, Ohio, or Pennsylvania with all other firms. Rows 4–6 examine bids for firms that conduct an initial public offering in 1995. Rows 7–9 examine only firms that have been public since at least 1980. Differences in the frequency of takeover bids for these mature firms is unlikely to result from a selection bias effective when they went public years ago. Panel B adds additional detail on the state of incorporation and contrasts the takeover activity among firms incorporated in (a) Delaware, (b) Massachusetts, Ohio, or Pennsylvania, or (c) all other states. Domicile data come from Compustat, a Lexis search of public proxy statements, and data collected by Romano (1985) and Comment and Schwert (1995). Data on bids come from Securities Data Corporation's Merger and Acquisition database.

	Percent of firms receiving a bid	Percent of firms acquired	Number of firms
Panel A			
<i>Public firms</i>			
Other firms	18.06***	10.86	3,261
MA, OH, and PA firms	11.96	8.33	276
<i>Mature Firms</i>			
Other firms	17.05**	10.19	1,079
MA, OH, and PA firms	9.42	7.25	138
Panel B			
<i>Public firms</i>			
Delaware firms	20.11	12.31	1,974
Other firms	14.92	8.62	1,287
MA, OH, and PA firms	11.96	8.33	276
	Chi-square***; Cochran–Armitage ***	Chi-square***; Cochran–Armitage***	
<i>Mature Firms</i>			
Delaware firms	18.42	10.99	619
Other firms	15.22	9.13	460
MA, OH, and PA firms	9.42	7.25	138
	Chi-square**; Cochran–Armitage***		

<sup>a</sup> Panel A: Differences in means significant at 1% (\*\*\*) and 5% (\*\*) level. Panel B: Chi-square and Cochran–Armitage trend statistics significant at 1% (\*\*\*) and 5% (\*\*) level.

of public firms, who have a veto power over reincorporation, might not find it in their interest to propose reincorporation to a jurisdiction that makes acquisition easier. This hypothesis could also explain why Delaware firms have higher Tobin's  $Q$  but similar accounting results – future merger premia would be impounded in a firm's stock price, even if they do not affect earnings (Romano, 1996; Baysinger and Butler, 1985). An alternative interpretation of these results is that Delaware firms attract more bids because they offer acquirors greater raw gains and not because they are more cheaply acquired. For instance, if Delaware law allows excess managerial slack, as suggested by Cary (1974), this would reduce firm value below its “true” value and attract bidders. However, this interpretation is inconsistent with the findings that Delaware firms are more valuable and not less profitable.

## 5. Selection bias and endogeneity

I have presented evidence that Delaware firms are worth more and are more likely to receive takeover bids and be taken over. An alternative explanation of these findings is that Delaware attracts, rather than creates, firms that are especially valuable and likely targets. If true, this would be an interesting result and would shed light on the role of corporate law. Note, however, that no theory currently predicts either that Delaware attracts valuable firms or that it attracts likely targets, let alone the joint finding that Delaware firms are both more valuable and likely targets.<sup>8</sup> Nevertheless, this section examines possible selection biases. I conclude that they are unlikely to explain the findings reported above, though might play some role.

### 5.1. *Simultaneous estimates*

To control for the endogeneity of firm value and takeover likelihood, I simultaneously estimate the likelihood of a takeover bid and firm value using two stage-estimations.<sup>9</sup> Estimated values for Tobin's  $Q$  are obtained for the

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<sup>8</sup> Kahan and Kamar (2001) argue that the advantages of Delaware law are increasing in firm size and that big firms therefore incorporate in Delaware. But firm size is negatively correlated with Tobin's  $Q$  and with takeover probability (see Tables 2 and 7). Moreover, Romano (1985) concludes that Delaware law attracts acquisitive firms, but acquiring firms do not earn abnormal returns (Jensen and Ruback, 1983) so this would not explain why Delaware firms are valuable.

<sup>9</sup> I do not jointly estimate the state of incorporation because in the vast majority of public firms, domicile is largely exogenous. Fewer than 4% of sample observations come from firms that reincorporated once public. Thus, for the vast majority of firms, the only predictor of current domicile is the domicile chosen at IPO, nor is it clear why factors determining domicile at the IPO-stage would be relevant decades later, as ownership and firm and industry conditions change. Domicile is also somewhat fixed in that neither managers nor shareholders can change domicile without other parties' approval. I instead reduce the risk of endogeneity by examining firm value

cohort of 1995 firms and then included as independent variables in the model estimating whether these firms received a takeover bid. This approach yields consistent estimators of model parameters and corrects for endogeneity.

This simultaneous estimate does not affect the Delaware result. Delaware firms are significantly more likely to receive a bid (estimated coefficient 0.38;  $p$ -value 0.001) when I control for industry, state of incorporation, firm size, and the estimated Tobin's  $Q$  (see Table 7, column 3). The result is robust to the addition of controls for firm leverage, incorporation in a protective state, and return on assets (estimated Delaware coefficient is positive and significant at the 1% level). Similar results are obtained for the 1990 cohort.

Moreover, a Hausman specification test (Spencer and Berk, 1981) suggests that there is no significant simultaneity in the OLS and logit estimates; the error term in the Tobin's  $Q$  estimate is uncorrelated with the likelihood of a takeover when added as a regressor to the estimate of takeover likelihood. I therefore conclude that there is not significant simultaneity in these estimates.

### 5.2. *Mature firms with exogenous domicile*

To further examine whether endogeneity explains these results, I examine a subset of firms with fixed domiciles. Because very few firms ever reincorporate after going public, a firm that has been public for many years and has never reincorporated is highly unlikely to do so. As a result, the domicile of mature firms is relatively exogenous. Moreover, whatever factors determine the domicile of firms at the IPO, it is unlikely that these factors continue to be highly correlated with firm value or takeover threat decades later. For instance, firm value is increasingly unrelated to a firm's valuation in prior years; the correlation between sample firms' Tobin's  $Q$  in 1981 and 1987 is 0.333, declining to 0.192 between 1981 and 1996. If mature Delaware firms are worth more or are more likely to be targets many years after the IPO, it is thus unlikely to be an artifact of a selection bias at the IPO.

I therefore examine firm value and takeover bids among a subset of mature firms, which I define as those public in 1981 and still public in 1995. I exclude firms that reincorporated. I find that, among a subset of 1,078 mature firms, Delaware incorporation is associated with significantly higher valuation (see Table 11, column 1). This is unlikely to be an artifact of a selection bias operative at the IPO decades earlier; if valuable firms simply incorporated in

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#### *footnote 9 continued*

and the takeover bids among the population of mature firms whose domicile is fixed (see Sections 5.3 and 5.4). In addition, I follow Lang and Stulz (1994), Berger and Ofek (1996), Yermack (1996), Holderness and Sheehan (1988), Mørck et al. (1988a), and others who regress explanatory financial and governance variables against an estimate of firm value and, in order to address endogeneity concerns, examine the effect of changes in the characteristic of interest (such as diversification or firm governance).

Delaware at the IPO, it is unlikely that the effect would endure for decades. Instead, this result suggests that Delaware law improves firm value.

Similarly, if mature Delaware firms are subject to more takeover bids, it is unlikely to be an artifact of incorporators' decision, long ago, to select Delaware on the grounds that (a) the firm would become a target in the late 1990s and (b) Delaware law would then be congenial to targets. Consistent with this hypothesis, I find that mature Delaware firms are significantly more likely to receive a takeover bid. In univariate comparisons, bids are significantly more likely for Delaware firms and acquisitions are more likely, but insignificantly so (see Table 6). Mature Delaware firms also receive more bids and firms in entrenching states fewer bids than other firms (see Table 9).

In multivariate regressions that control for other factors that affect acquisition likelihood, Delaware firms are both more likely to receive a bid and more likely to be taken over (see Table 7). In unreported regressions, I confirm that Delaware firms are significantly more likely to receive a bid and to be acquired in two-stage simultaneous estimates, in each of which the estimated Delaware coefficient is significant ( $p$ -value of 0.05).

Thus, domicile in mature firms is likely to be relatively exogenous. Mature Delaware firms have higher valuations and are more likely to receive a takeover bid and to be acquired, though they are unlikely to have predicted this at the time of their IPO at least 15 years prior. This suggests that Delaware law improves firm value and takeover likelihood, rather than simply attracting valuable targets.

### 5.3. *Do high-value firms simply incorporate in Delaware?*

This section reviews evidence that the higher valuation of Delaware firms is not explained by the fact that already valuable firms simply reincorporate in Delaware. First, reincorporating firms make up only 4% of sample observations and I obtain similar results when I omit them in regressions estimating Tobin's  $Q$  and the likelihood of a takeover bid. Second, as noted earlier, reincorporation to Delaware increases share price in many event studies, particularly among those firms that do not add takeover defenses. Third, I also present fixed-effects models that estimate coefficients based upon within-firm variation, and find that Delaware incorporation is associated with significantly higher Tobin's  $Q$  values (see Tables 2 and 4) – consistent with the idea that moving to Delaware improves Tobin's  $Q$ .

There is some evidence that firms reincorporating to Delaware are not especially valuable prior to reincorporation. I compare 190 firms that reincorporate to Delaware between 1981 and 1997 to a size and industry-matched sample of non-Delaware firms that did not reincorporate. Their Tobin's  $Q$  estimates in the year before they reincorporated are not statistically

different in unreported tests.<sup>10</sup> In addition, I also match reincorporating firms to the non-reincorporating firm in the same four-digit SIC code with the most similar Tobin's  $Q$  in the year prior to reincorporation. In this sample, reincorporating firms experience greater increases in Tobin's  $Q$  in the two-years following reincorporation (the effect is significant at the 10% level). Tests using other time-frames provide mixed evidence that reincorporation improves Tobin's  $Q$ .

Finally, I attempt to control for firm quality at the IPO, the time at which a hypothesized selection bias would operate. I use the reputation of the firm's initial underwriter as a proxy for firm quality because I assume good underwriters underwrite offerings for "good" firms, turning down "poor" firms in order to protect their reputation with investors. Underwriter reputation measures are taken from Carter et al. (1997). I have data on the reputation of the underwriter of 892 sample IPO firms accounting for 3,016 firm years of data.

As Table 10 indicates, firms taken public by "good" underwriters (those ranked in the top quartile) have significantly higher Tobin's  $Q$  and are significantly more likely to incorporate in Delaware than poor quality firms. This is consistent with higher quality firms incorporating in Delaware initially. I then reestimate the fixed-effects model for Tobin's  $Q$ , controlling for firm quality at the IPO, both with and without controls for managerial ownership. Results are summarized in Table 11, columns 2 and 3. Firm quality at the IPO is significantly positively related to Tobin's  $Q$  values, but Delaware firms are still worth significantly more ( $p$ -value 0.001). Other coefficients have the expected sign. In unreported regressions examining Tobin's  $Q$  in annual cohorts of firms going public since 1990, I control for firm quality and find that Delaware incorporation is always positive and is significant in three of the six years (coefficients between 0.05 and 0.28). As a final control, I examine Delaware law's association with firm value for both "good" and "poor" firms. If Delaware law has an affect on firm value, Delaware firms should be more valuable in each subset. I find that they are in unreported regressions. These results suggest that though valuable firms may incorporate in Delaware, Delaware law also improves firm value. Because IPO firms are likely to be of roughly similar age, these results also suggest that the higher valuation of Delaware firms is not due to differences in firm age.

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<sup>10</sup>These results are consistent with the Heron and Lewellen's (1998) finding that reincorporating firms were no more profitable and have no better stock market performance prior to reincorporating, though inconsistent with their finding that reincorporating firms had higher market/book ratios, perhaps because of sample differences or because I match against firms in the same four digit SIC code, while they match on size and instead control for membership in several high-tech SIC codes. Omitting reincorporating firms does not change this paper's results however.

Table 10  
Descriptive statistics for IPOs<sup>a</sup>

Descriptive statistics for firms that conduct initial public offerings between 1990 and 1997. Rows 1 and 2 examine differences between firms incorporating in Delaware and those incorporating elsewhere. Rows 3 and 4 report statistics for “good” and “bad” firms, where firms are categorized as “good” if they are taken public by underwriters whose reputation is in the upper quartile of the Carter-Manaster ranking (Carter et al., 1997). Other firms are considered poor firms. Missing data for some underwriters reduce the sample size. Data on firms conducting initial public offerings and on firm assets (calculated three years following the IPO) come from Securities Data Corporation. Tobin’s  $Q$  estimates come from data on Compustat.

	Assets	Sales	Debt/ assets	Tobin’s $Q$	Percent incorporating in Delaware	$N$
Delaware firms	515***	223***	0.15	2.41	N/A	2,077
Other firms	201	89	0.14	2.38	N/A	1,660
Good firms	983***	402***	0.19***	2.23***	60%***	1,025
Other firms	219	116	0.14	2.13	53%	1,886

<sup>a</sup> Significant at the 1% (\*\*\*) level.

#### 5.4. Discussion

It is impossible to exclude the possibility that Delaware simply attracts valuable firms. Although selection bias may explain some of the effect I observe, it seems unlikely that selection bias explains it all. First, Delaware would need to attract firms that are both likely targets and especially valuable. No theory of firm domicile suggests this and results are robust to a wide variety of corrections for endogeneity. In particular, results are unchanged when I exclude reincorporating firms and when I examine only subsets of mature firms whose domicile is relatively fixed. These results suggest that while valuable firms may incorporate in Delaware, this does not explain all of the results I observe.

Note that there is one endogeneity account that is consistent with the evidence. If Delaware law facilitates the sale of the firm, good managers might be more likely to incorporate there because they have less reason to fear a disciplinary takeover. Poor managers, or those valuing private benefits, would thus avoid Delaware incorporation because it would be more costly. Thus, though selection bias could explain some of my results, this account is consistent with the hypothesis that Delaware law improves firm value.

## 6. Conclusion

Delaware law governs more than half of U.S. public firms. Some scholars claim that Delaware law facilitates management opportunism, while others

Table 11  
Estimates of firm value controlling for selection bias<sup>a</sup>

This table presents estimates of Tobin's  $Q$  that reduce the possibility that the association between Delaware corporate law and higher Tobin's  $Q$  is explained by a selection bias. Column 1 examines firms whose value is less likely to be related to their value at the time of incorporation. This dataset includes firms that are public in 1981 and still public (and had not reincorporated) in 1995. Column 2 reduces the risk of selection bias by controlling for a proxy for firm quality at the time of an IPO and by controlling for unobserved heterogeneity with a fixed-effects estimate. The proxy for firm quality is the reputation of the underwriter as measured by Carter and Manaster (Carter et al., 1997). The dataset of IPOs includes 1,384 sample firms that go public between 1990 and 1997 and for which SDC has data on underwriters. Column 3 adds a control for the percentage of shares retained by insiders at the IPO. Firm financial data come from Compustat. Domicile data come from Compustat, a Lexis search of public proxy statements, and reincorporation data collected by Romano (1985) and Comment and Schwert (1995). OLS standard errors are White (1980) robust.

Dependent variable: *Tobin's Q*

Variable	Mature firms public for at least 15 years in 1995 OLS estimate	Firms conducting an IPO 1990–1997 Fixed-effects estimate	Firms conducting an IPO 1990–1997 Fixed-effects estimate
Delaware incorporation	0.12** (0.05)	0.12** (0.05)	0.13* (0.07)
Firm quality (underwriter reputation)		0.25*** (0.01)	0.23*** (0.02)
Inside ownership after the IPO			0.01*** (0.00)
Firm size (log of sales)	-0.05*** (0.02)	-0.16*** (0.02)	-0.18*** (0.03)
Number of business segments	-0.04** (0.02)	0.14*** (0.05)	0.08 (0.06)
R&D expense/assets	6.15*** (1.04)	4.48*** (0.22)	4.55*** (0.29)
Return on assets (current year)	3.42*** (0.94)	1.55*** (0.12)	1.50*** (0.15)
Return on assets (prior year)	-0.05 (0.79)	-0.00 (0.00)	-0.00 (0.00)
	Industry Dummies	Firm Dummies	Firm Dummies
Sample size	1,078	3,016	1,763
F-statistic	9.78	663	387
(p-value)	0.0001	0.0001	0.0001
R <sup>2</sup>	0.35	0.12	0.16

<sup>a</sup> Significant at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) level.

believe that it improves value. Still others claim or implicitly assume that Delaware law is trivial, either because state law is thought to be uniform or because security design and substitute governance mechanisms protect investors.

I examine the market valuation of 4,481 exchange-traded firms between 1981 and 1996 and I find that firms subject to Delaware corporate law are worth significantly more than firms incorporated elsewhere. Differences are statistically significant and economically meaningful in pooled regressions and in 12 of the 16 years in the sample. Results are robust to a wide variety of controls, including firm and industry fixed effects. The effect appears to be stronger for smaller firms.

Delaware firms are also significantly more likely to receive takeover bids and to be acquired. This result is consistent with the theory that Delaware law facilitates the sale of public firms through its relatively clear and mild takeover law and expert courts. I also argue that Delaware's political economy makes it relatively pro-takeover and unlikely to protect target managers. Consistent with the theory that cross-sectional variation in firm value is partly explained by state law, firms incorporated in several states with severe antitakeover statutes are worth significantly less and may receive fewer bids.

In short, Delaware firms are worth more and receive more takeover bids. The results are robust to a wide variety of controls for potential endogeneity. Taken together, these results are consistent with the theory that Delaware law improves firm value by increasing the likelihood of merger premia and managers' incentives to improve share price.

State competition to sell corporate charters and legal rules thus produces a winning state, Delaware, whose law appears to be more valuable than that of other states. I find no support for the claim that managers harm shareholders by incorporating in Delaware to extract additional rents, or that federal regulation of firm governance is required because Delaware law is relatively harmful to investors. Investors' willingness to pay more for Delaware firms and Delaware's increasing market share are also inconsistent with claims that state corporate law is uniform or trivial.

Note that these results do not establish that Delaware law is optimal for all firms. Some states might offer benefits to particular firms that Delaware cannot match. Nor do these results suggest that all firms will reincorporate to Delaware; agency costs in public firms, and managers' ability to veto any reincorporation, could prevent valuable reincorporations. Nor do these results show that Delaware law is better than a hypothetical federal code or that all of Delaware's laws are optimal. The observed premium, for instance, might be even larger were Delaware law different or less entrenching of incumbent managers. However, the data do suggest that Delaware law is a relatively valuable intangible asset and that shareholders pay more for assets governed by Delaware law.

Several extensions are suggested by these findings. First, Delaware incorporation is apparently an important feature of corporate governance. Its law is associated with significantly greater firm value and takeover likelihood between 1981 and 1996. The effect is durable and firms do not appear to replicate its advantages through private contract. This may be because Delaware's judiciary or precedent are valuable. State law might therefore be considered in future studies of firm value and takeover likelihood.

Second, if state law matters, it should affect incorporators' decisions at an IPO. A separate paper examines how firms select a domicile upon going public (Daines, 2001b).

Third, Delaware law could have other advantages besides takeover law. I do not attempt to identify the extent higher value might be attributable to particular causes or whether the Delaware effect is stronger for particular firms. Perhaps Delaware courts' decisions regarding fiduciary duties provide better protection to shareholders outside of the takeover area. A separate paper will examine whether Delaware law affects the value of firms that are not exposed to the market for corporate control (such as firms with control shareholders).

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