

# Revisiting Corporate Governance Regulation: Firm Heterogeneity and the Market for Corporate Domicile

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## Abstract

This paper uses a discrete choice framework to analyze state design and firm choice of the implications of incorporation: corporate governance laws, corporate taxes and court structure. Firms – differentiated on ownership, management, industry concentration, financial profile and unobservable dimensions – freely choose their preferred state of incorporation or reincorporation. The revealed preference embedded in this observable choice is used as window into the heterogeneous preferences within and across firms, yielding several findings: For example, I find, surprisingly, that firms are very responsive to incorporation and franchise taxes. In addition, on average, firms like antitakeover statutes, but, consistent with an agency story, firms with an institutional shareholder block and venture capital backed firms dislike them. On average, firms dislike mandatory governance statutes restricting managerial power and facilitating the representation of minority shareholders, but these laws are less restrictive for the choice of firms in concentrated industries. All firms dislike well functioning courts, consistent with a litigation deterrence motive. The recovered firm preferences are then taken to the simulation of recently proposed federal reforms aimed at centralizing the domicile implications and restricting firm choice.

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# 1 Introduction and Motivation

Corporate governance law is the set of rules in legislation or judicial precedent that “govern” the internal and external agency issues that exist within a corporation. These rules govern areas such as takeovers, shareholder voting rules and managerial liability, and provisions such as supermajority requirements and antitakeover defenses. They represent the policies instituted to combat the divergence of interests within a firm and to align managerial and shareholder interests. State corporate governance laws, together with federal securities law, form the background against which firms exercise their residual freedom to design their corporate charters<sup>1</sup>. It is the combination of the laws and the firm charter that forms the firms’ complete governance structure.

There are three crucial facts that form the background for this paper: First, the majority of corporate governance issues are **not** regulated by the federal government; the 51 US jurisdictions design their own distinct corporate environments. Second, state corporate governance regimes are applied to a firm by way of incorporation in a certain state. Third, firms are free to choose in which state to incorporate (or reincorporate<sup>2</sup>). The location of incorporation need not be related to the firms’ business locations. However, the consequence of incorporation is submittal to the complete corporate governance regime in a state. Firms generally cannot choose which provisions in a state’s governance regime they will be subject to - they must take all the provisions as a package. This package generally includes a choice of the local judicial forum, since personal jurisdiction over the internal conflicts in the firm generally goes to the state of incorporation (compare Stevelman 2009). It also includes the taxes that states impose as a consequence of incorporation within them.

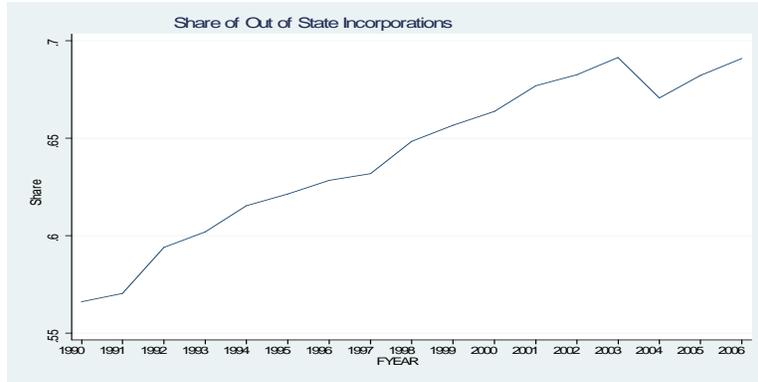
This paper uses the revealed preferences embedded in state design of incorporation implications and firm choice of a particular state of incorporation, to address three main questions: The first is which incorporation implications drive firm choice, or in other words, what matters to firms when they choose their governance regime. The second is why firms choose different incorporation states. The differential firm choices can be seen as a window into the firm through which the key differences in firms that generate the differing preferences for governance regimes can be analyzed. The third is what would be the impact of a reform in governance laws restricting the flexibility of states to design their own laws. The responsibility for the regulation of corporate governance has been repeatedly granted to the states only to be taken back by the federal government in times of crisis (see Mallette and Spagnola, 1994<sup>3</sup>), and thus it is unsur-

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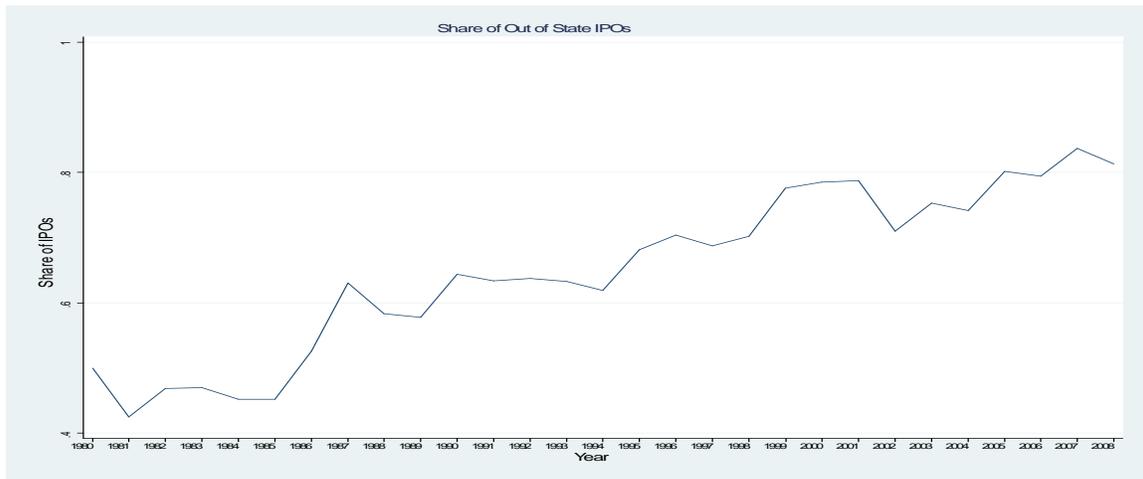
<sup>1</sup>In this paper, for convenience, I often use the term charter to refer to the bylaws and all other internal governance tools used by the firm.

<sup>2</sup>American corporate law generally requires manager initiation and shareholder approval of a re-incorporation decision, upon which firms can then change their state of incorporation freely.

<sup>3</sup>Mallette and Spagnola, 1994, discuss how states surrendered their common law authority to the federal government in the Great Depression era, took much of it back in the merger wave of the 1960s, were halted by the Supreme Court *Edgar vs. Mite* (1982) decision which struck down protectionist statutes as constricting interstate commerce, and then given new freedom in *CTS Corporation v. Dynamics Corporation of America* (1987) where the Supreme Court accepted review of the invalidation of Indiana’s state takeover statute. It is this decision that



(a) Full Stock



(b) IPO

Figure 1: Trends in Out of State Incorporations.

prising, given the current economic crisis, that the decentralized nature of corporate governance law has been revisited once again.

I begin by characterizing the diversity in state incorporation implications. I find that there is substantial heterogeneity in the laws, taxes and performance of the relevant state courts. Over the course of the entire time period covered (1990 – 2007), there is legislative activity across many states, although at much lesser levels than that which was present in the late 1980s and early 1990s.

I then find that there is much heterogeneity in the choices of firms as well. Figure 1 (sourced at the data discussed below) shows that there is a significant tendency to incorporate in one of the 51 headquarter jurisdictions, as well as a growing trend - both amongst IPO firms and the stock of public firms as a whole - for firms to shop for their preferred incorporation venue. There is significant variance in the choice of the state of incorporation both in the time series and in the cross section. Many states make little effort and have little success in retaining firms

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is seen as largely responsible for the huge wave of litigation, particularly concentrated in the late 80's and early 90's.

headquartered therein and especially in recruiting firms headquartered elsewhere. However, there are several incorporation "hot spots", most notable amongst which are Delaware, Nevada and Maryland, and a number of states that make sizeable efforts to increase the stock of firms they attract. Contrary to what is commonly believed, it is not all about Delaware - the leader in incorporation shares - which, in fact, recently has seen a significant decline in its shares. The dispersion of incorporation shares in figure 7 in the appendix, and in the revenues from incorporation, franchise and even corporate income taxes, in the cross section and the time series, nicely displays the variance and concentration in incorporation choices<sup>4</sup>.

In order to exploit this information revealed in the preferences displayed by the different firms, a novel dataset with firm and incorporation characteristics is assembled and then a random coefficient discrete choice model is specified. In the model, incorporation is treated as a "product" that the states design, differentiated along all of the dimensions of the implications of incorporation, including the direct "price" - the tax implications incorporation imposes on each firm. In every one year period, each heterogeneous firm chooses its preferred "product" by choosing to incorporate, to remain incorporated, or to reincorporate in one of the 51 US jurisdictions. Firms are decomposed into their ownership patterns, director characteristics, industry concentration, financial profiles, the geographical location of their headquarter states, and the residual unobservable dimensions of heterogeneity within them. The choice of incorporation state is seen to be made based on the preferences - resulting from these dimensions of firm heterogeneity - for the laws, court characteristics and taxes that makeup the incorporation implications. I find that all incorporation implications, the laws, the court characteristics and the incorporation taxes matter, albeit in differing magnitudes. My findings are thus separated into these three groups of incorporation implications:

Regarding the corporate governance laws, I find mean preferences consistent with the expected (narrow) managerial preferences within a firm. Firms generally like antitakeover legislation, dislike mandatory laws restricting managerial privileges and dislike laws restricting the flexibility in making shareholder payouts. This "agency" view of mean firm preferences is reinforced by looking at individual firm heterogeneity. Using a regression discontinuity approach to control for selection endogeneity, I find that firms with sophisticated shareholders - institutional shareholders or venture capital backed firms - and sizeable holdings in the firm, dislike antitakeover laws. In other words, the mean preference for antitakeover laws is reversed in firms in which shareholders are more powerful, thus reinforcing the view that when shareholders have more authority they choose a more convenient regime for takeovers. Firms in more concentrated industries do not display statistically significant different preferences for antitakeover laws, but, contrary to the mean firm, are not influenced by the existence of mandatory laws restricting managerial freedoms. Unobserved heterogeneity plays an important role for these laws, for which preferences are dispersed. In addition, there is a life cycle pattern in these preferences, whereby older firms have an even stronger preference for antitakeover laws, but are less con-

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<sup>4</sup>Figures on the dispersion of these measures will be available in an online appendix.

strained by the mandatory laws mentioned. Interestingly, the characteristics of managers and directors are not instrumental in incorporation decisions.

The mean firm preference is for "bad" or backloaded courts, at the trial or appellate level. Here, looking inside the firm, I find that firms that are significantly held by institutional shareholders exhibit an even stronger preference for "bad" courts at the appellate level, but prefer well functioning courts at the trial level.

Firms dislike taxes to such a degree that they respond to tax changes by reincorporation even though the increases in taxes are very small. I show, both in my aggregate model - which accounts for the changes over time in the tax rates and in the individual liability of a given firm when its tax base changes - and specifically regarding two tax changes in 2003, that firms are highly sensitive to the incorporation taxes, despite their relatively small magnitudes. State corporate income taxes, which are related to incorporation only in very limited settings, but suspected to be highly manipulated, are found to not be instrumental in the incorporation choice.

The recovery of these firm preferences allows for the treatment of the third question: the impact of federal interventions in state governance laws. Consistent with some of the plausible federal reforms frequently discussed in the media<sup>5</sup>, I simulate the choices that would be made under counterfactual policies which limit the variance in legal structures across jurisdictions, eliminating the key antitakeover laws and imposing mandatory limitations on managerial freedoms. I find that the laws change the aggregate shares and impact the desirability of some of the popular incorporation alternatives. However, consistent with the findings above, many of the incorporation implications matter. This can help or hurt the various states. For example, the state of Delaware, the most popular incorporation hot spot, increases its share of firms; however, Maryland and Nevada decrease theirs. Furthermore, since the patterns of incorporation are related to the characteristics of the firm, any change would impact the distribution of shareholders holding the firms incorporated in the various states. Thus, for example, a change in the distribution of antitakeover laws causing a jurisdiction that previously had antitakeover laws to no longer have them would be a drawback for the mean firm, but would attract firms with sophisticated shareholders. When several changes are made simultaneously, it is the combination of the specific firm preferences that shapes the overall firm specific effect, which often differs substantially from that of the mean firm.

These findings relate to the existing literature regarding the impact and importance of corporate governance, which largely rely on abnormal returns earned by the "better" governed firms. This paper finds an interaction between the many dimensions of firm heterogeneity and corporate governance in legislation. However, there is specificity in the form of the interaction. Thus, for example, while the concentration of industry affects the preferences for some laws, it is not instrumental regarding antitakeover laws. As will be shown, these findings can be seen

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<sup>5</sup>See for example claims made by (then) Senator Obama in the second presidential debate (Belmont University, 10/2/2008); and Carl Ichan, "Capitalism Should Return to Its Roots" (WSJ, 2/9/2009).

as complementary pieces in the puzzle of the impact of governance rules on firms.

Furthermore, while this work addresses the divergence in preferences in the context of the incorporation choice, my findings - as well as other potential findings concerning other dimensions of firm heterogeneity - can be related to the broader issue of how these dimensions affect our concept of the firm - as an equilibrium between all these competing constituencies. Thus, for example, my findings regarding institutional shareholder preferences relate to the wide body of literature analyzing the impact of the general increases in institutional shareholder holdings (see for example Aghion et al 2007). Similarly, my findings on venture backed firms relates to the literature on the firms' life cycles in general and the venture capital cycle in particular (see for example Gompers and Lerner 2004).

On the methodological side, this paper imports and extends the canonical framework of a random coefficients discrete choice problem commonly used in industrial organization applications to a finance setting where individual firm choice and many degrees of firm heterogeneity are observable. This setting has advantages over the original applications: The product is the sum of observable characteristics and thus the decomposition is very straightforward.<sup>6</sup> In addition, there is variation in all characteristics over time, which facilitates the controls for unobservables, and there is wide variation in the base, schedule and rates of taxes across jurisdictions. The treatment of endogeneity is done using instruments based on a regression discontinuity design, exploiting the randomness inherent in the inclusion in the S&P 500 index, where the highly non-linear choice structure is accounted for using a control function approach. Counterfactual policy analysis relates not only to the changes in the aggregate shares, but also to the makeup of firm heterogeneity in the various jurisdictions, under the various policies.

The paper is structured as follows. I begin, in section 2, by reviewing the relevant legal and corporate finance literatures upon which I build in this work. Then, in section 3, I present and describe the data and characteristics that are inputs into my model and methodology. Section 4 discusses the model and estimation strategy. In section 5 I turn to my results. I first present and discuss the results from my full model. I then grant incorporation taxes special treatment and provide a reduced form analysis of two tax changes in 2003. Section 6 discusses the simulation of counterfactual policies. Section 7 concludes and discusses some future extensions.

## 2 Related Literature

### 2.1 The Choice of Law

The freedom offered to states in the design of law and the freedom offered to firms in the choice of incorporation state has spawned a sizeable legal literature. This active literature has not reached any consensus, despite the some 30 years over which it has developed. Indeed, some see there to be "genius", active competition between states (or at least some of them) to attract firms (for example Romano, 1985, 2006); some see the state of Delaware - which has a sizeable share of

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<sup>6</sup>This, compared to the canonical examples of cars and cereals which are challenging to decompose.

the publicly traded firms - to have won and there now not to be any "competition" (for example Kahan and Kamar (2002), and Bebchuk and Hamdani (2002)) and some see the "competition" to be more with the interventions (actual or potential) of the federal government. Furthermore, within the competition camp as well, there is a debate as to whether this competition is positive - in the sense that it is inducing states to generate "good" laws that promote firm (and shareholder) value ("A race to the top") (Winter (1977), Easterbrook(1983), Fischel (1982)) - or negative - in that it may induce states to cater to management, which potentially has more power in making the incorporation choice, and may warrant federal intervention ("A race to the bottom", Nader (1976), Cary (1974)).

Furthermore, Delaware's success has received specific attention. Daines (2001) finds that controlling for firm financials, the share of director and officer ownership, and industry and year dummies, Delaware firms have a higher Tobin's Q (in the cross section years 1981 – 1996). Daines' explanation is that these firms are more vulnerable to takeovers and that this increases firm value. Subramanian (2004) finds this effect be decreasing and after 1996 eliminated (due to what he sees as antitakeover movements in Delaware combined with a friendlier takeover attitude in the late 90's). In analyzing the incorporation decision of firms at IPO, Daines (2002) does not find the variation in state law to be a significant driving force. Kahan, in more recent work (2006) looks explicitly at the effects of some of the state laws on the proportion of firms located in the state that at IPO, in the years 1990 – 2002, also choose to incorporate (or remain incorporated) there and finds this yearly retention rate to be related to the governance laws, and to a court quality ranking.

This paper shows that when fully accounting for the implications of the incorporation choice, not only do state laws matter, they matter differentially to different firms and these differences can be related to the preferences firms with different characteristics have for their respective governance environments. In other words, the preferences for these laws are also informative as to the differing agency issues faced by different firms.

## **2.2 Does Governance Matter?**

There is now a growing corporate finance literature focusing on the final governance structure, the firm bylaws (that evolve from the legislative structure), that answers this question in the affirmative. However, this is still a largely researched and debated question. The standard approaches in this literature have been to use the stock market valuation of publicly traded firms with heterogeneous governance mechanisms to evaluate internal governance. These approaches generally pre-specify the "better" rules, identify the firms operating with such rules in their charter, and then rank and price them relative to (comparable) firms with (pre-specified) "worse" governance rules. Accordingly, these approaches ask whether "better" arrangements and structures are correlated with higher shareholder value. This is done in two ways: The first is to look at a cross section of prices and attribute some of the added value of Tobin's Q to the existence of the "better" governance measures (for example Brown and Caylor (2006)).

The second, more influential approach, led by Gompers et al (2003, GIM), is the construction of profitable trading strategies based on buying the "best" corporate governed firms (in terms of shareholder rights) and selling the "worst" corporate governed firms. GIM also find these "better" firms to have higher value, profits, sales and growth, lower capital expenditures and fewer corporate acquisitions. The "best" and "worst" are determined (in what is now termed the GIM index), using a cumulative score for the presence of the good and the absence of the bad governance mechanisms out of the pool of 24 such mechanisms in their data. This approach has been further refined. Cremers and Nair (2005) find the premiums to result from buying and shorting firms with high ownership concentration (of large public pension fund blockholders). Giroud and Mueller (2008) sort based on the competitiveness of the industry and find that the GIM index matters primarily for firms in noncompetitive industries. Masulis et al (2007) connect these governance provisions to acquirer returns and find acquirers with "better" GIM firms and those operating in more competitive industries, to experience higher abnormal returns. Note that these approaches often add a Delaware dummy as an additional characteristic to test the importance of this popular choice of venue, and this dummy is generally not significant.

While the results in these studies are very interesting, they present a challenge in that it is difficult to model and understand the origin of these provisions. Better firms may have what are seen to be better internal bylaws, and it is very difficult to model and thus isolate the effects of all the provisions in a firm and attributes of a firm that make it better. Core et al (2006) push these points to examine the source of the mispricing of firms with better GIM governance, and find that it cannot be attributed to shareholder rights (in terms of analyst forecasts or surprise earning announcements), and conclude that, most likely, it is a correlation with one of the "pricing" puzzles of the 90's. Bebchuk et al (2005), criticize the Gompers measure claiming that only six of the measures drive the results. Brown and Caylor (2006) say it is other measures, including new internal governance provisions as well as the ownership composition. Furthermore, both the nature of the choice (i.e. what bylaws can be chosen), and the implications of the choice (i.e. the manner in which the choice will be enforced in courts) are affected by the legal environment. Thus, firms may be choosing a jurisdiction because of its taxes, legal environment, or laws and this may imply the choice of some of the other internal provisions. As explained above, the choice of internal governance is by no means independent from the choice of incorporation.

The approach followed here is thus to combine the insights from both these literatures. My model takes the attributes of firms found to be correlated with the differential performance of better governed firms (as well as other measures not yet examined in the literature), and the laws, which often are mechanically related to the bylaws and relates them to the fundamental *choice* of law and incorporation venue that firms make. I specify a model aimed at capturing the relatively well defined key factors in the incorporation choice, and thus facilitate the isolation of the preferences for the different laws and product characteristics. The recovery of these preferences within the structure of my full model also allows for the (previously unexplored)

simulation of counterfactual policies.

### **3 Data: The State Characteristics and the Attributes of Firm Heterogeneity**

In this section I describe the features of the incorporation package as well as the attributes of firms relevant to their incorporation choice decision, and the data collected to capture these features and attributes. In an attempt to accurately capture the heterogenous firm preferences for each of the implications of incorporation, I collected data on as broad as possible set of features of states that could directly or indirectly influence incorporation, as well as a rich as possible set of firm characteristics over time:

The main objectives in choosing an incorporation state have been documented to be the establishment of takeover defenses, the reduction in director liability, obtaining legal flexibility and predictability, achieving tax and franchise fee savings, reconciliation of operating and legal domicile and (although to a lesser degree) the facilitation of acquisitions (see Heron and Lewellen (1998)). Similarly my online search for "advice" on where to incorporate, aimed at capturing the practical and informal discussions of the important determinants of firm choice, yielded many legal firms and organizations recommending that a corporation consider its home state, and also other options such as Delaware, Nevada, and Wyoming, in their comparison of the (pro and anti) business laws, the level of advancement of the legal systems, the other identity and characteristics of the other successful firms incorporated therein, and the "prestige" the various incorporation choices may carry, as well as the tax (franchise tax and state corporate income tax) "mentality" and costs of being incorporated away from home<sup>7</sup>. These considerations are - to a large degree - an expression of preferences for governance mechanisms - both substantial and procedural, and consequently these are the features for which I collect data and focus my analysis in the "demand estimation", and in the characterization of the bundled product that is the incorporation choice.

#### **3.1 Public Firms**

In this work I focus on publicly traded firms, which are easier to collect data for and are traded. Compustat data treats incorporation and location as scalar variables which are updated to the most recent value and consequently cannot be used for the time series. Thus, the main data source on firm incorporations and reincorporations is the actual SEC filings, as contained in the monthly SEC disclosure CD's. This data comes from the 10Ks and 10Qs filed by all public firms. For consistency, I pulled the data out of one CD a year beginning in 1990. I supplemented this data with compustat back-tapes. I use compustat financial information when available

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<sup>7</sup>For examples see [www.mynewcompany.com/whichstate.htm](http://www.mynewcompany.com/whichstate.htm); [http://www.bizfilings.com/products/articles/which\\_state\\_to\\_inc.asp](http://www.bizfilings.com/products/articles/which_state_to_inc.asp); and [www.incnw.com/faq.shtml](http://www.incnw.com/faq.shtml) (all visited on 6/13/08).

and the financial information in these filings otherwise<sup>8</sup>. In my data, I track firms using their cusips, tickers and gvkeys. This implies that only reincorporations leaving one of these intact are analyzed<sup>9</sup>. This excludes some movements, but keeps those that are more likely to be directly related to a preference for the new state's product and not the result of other restructuring done with different motivations and for other objectives. Finally, I supplement this data with the complete records of IPO data from Thompson SDC. IPO data adds more variables (such as whether the firm was venture capital backed and the share of insiders), and narrows in on firms that are at the critical private-public juncture. I find roughly 2500 movements in my sample period. This is consistent with previous literature using other approaches (such as sampling and checking a subset of the firms)<sup>10</sup>.

## 3.2 Price - Incorporation and Franchise Taxes:

### 3.2.1 Overview

Taxes are the most direct price imposed on and paid by firms. States choose the taxes imposed on all firms operating or domiciled therein. As a result, there is considerable variance in the tax implications of incorporation in the different states. There are two main taxes that are generally directly related to the choice of incorporation: the incorporation or organization tax and the franchise tax. Both of these taxes generally have one of several unusual bases: the amount of the firm's actual or assumed par value capital, the number of authorized shares, or the total paid in capital. There is also variation across states and over time in the maximum amount of tax levied and in the manner in which these taxes are calculated. The difference between the taxes is that the first is paid upon incorporation and any increase in this base. Thus, if a firm decides to increase its number of authorized shares (the maximum number of shares management can issue without obtaining further shareholder approval) it will generally pay (in states imposing an incorporation tax with this base) a tax which is a function of the number of *additional* authorized shares. There is, therefore, an implied penalty for moving to a different state that charges such a tax, since in doing so the firm will have to pay the incorporation tax rate on the full amount. Franchise taxes are computed from a similar base, and paid annually.

The unusual base of authorized shares, which can vary considerably from the number of shares issued, is largely arbitrary. The number of authorized shares is in the financial statement, but is not collected by compustat or any other electronic database I am aware of. It does, perhaps, somewhat reflect the power and flexibility management has in making large expenditures without issuing debt, and in combating takeovers. However, it is difficult to see the connection between this firm *choice* of base and the potential implications it has on the balance

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<sup>8</sup>The only further potential step to track all reincorporations would be to look at the SDC merger data and isolate mergers in which the accounting survivor is the new firm created solely for the purpose of reincorporation. From my discussions with the team compiling compustat data, this is not a common or significant occurrence.

<sup>9</sup>This will not be the case if there is a merger in which the accounting survivor is a new firm created for the reincorporation process.

<sup>10</sup>Compare Rauh 2006 suggesting that about 5% of firms reincorporated over a 13 year period.

of shareholder-management power. It also seems to be rather easy to manipulate. There is, however, a methodological advantage of using tax as a price in that there is significant price variation, stemming not only from the cross section and time series variation, but also from different firms being subjected to different prices (across the different jurisdictions), depending on their tax base and their location in the previous period. Compare Kahan and Kamar (2001) who discuss some of this price variation.

The variance in the incidence of these taxes on incorporated firms stems not only from the variance in rates, but also - more importantly - from the fact that in many states these taxes do not differentiate in the rates charged to domestic firms - incorporated in the state - and foreign firms - incorporated in a different state - but conducting business in the state. In these states, the base is (for domestic and foreign firms) the capital which can be attributed to the state. Thus, the tax base is often related proportionally to the place of income generation, a location assumed exogenous to the incorporation choice in this work. Thus, for many states (and consequently for many choice alternatives) the choice of incorporation conditional on fixed business locations, will not entail any tax implications at all. Finally, these taxes are very small. Even for the large public firms considered, the taxes generally do not exceed a few hundred thousand dollars a year, and are often much less. In fact, most jurisdictions do not impose a tax at all.

Do these taxes matter? The legal literature generally treats these taxes as *di minimus* (and thus they have not been analyzed) as they generally do not exceed several hundred thousands of dollars a year for large firms (and are often much less). However, if these taxes do not matter, they are a distortion free way for states to collect huge tax revenues. Note that taxes should matter to states, just as prices matter to firms, regardless of the market power they have in their industry. And while we observe lethargy in the states' adaptation of their governance laws, states do, undoubtedly, care about their budgets. Incorporation and franchise tax revenues can be sizeable. For the state of Delaware, revenues from franchise and incorporation taxes alone account for roughly one third of the state revenue. These revenues are almost entirely profits. Roberta Romano (1998) estimates the costs of serving the incorporated firms in the state of Delaware to be under 3% of these revenues. Indeed, the recent franchise tax increase it made in 2003 was explicitly motivated by the desire to shrink its expected budget deficit. Alternatively, if taxes do matter, or, in other words, if they are (at least in some jurisdictions) high enough to have real effects on (at least some) firm behavior, if firms have non-zero elasticities to these taxes, these elasticities can be used to price the preferences for the governance arrangements that firms care about. Indeed, franchise taxes do not seem to be irrelevant even for public firms. In Delaware, the maximum annual franchise tax is now (after a 10% increase in 2003) \$165,000. Firms that have a minimum of \$660M in assets and \$26.4M in authorized shares will pay the maximum tax. However, since the tax base depends on authorized (not issued) shares, firms with a high ratio of authorized to issued shares (a common phenomenon) could have significantly fewer assets and still pay the maximum rate. In the case of Delaware, the Bar commonly bemoans the adverse effects of tax increases on the number of incorporations. Firms

also cite differential franchise tax rates as a reason for migrating out of Delaware. And finally, perhaps consequently, Delaware invests significant resources in justifying the taxes, claiming investments in improving the quality of its system, particularly in the time periods close to tax increases (compare Barzuza 2004). Indeed, we would expect that a source of revenue responsible for such a large share of the state budget would be carefully calibrated.

### **3.2.2 Incorporation and Franchise Tax Rates: Data**

I manually constructed the time series of all incorporation and franchise taxes for the 51 US jurisdictions, by locating the state laws in which the taxes are imposed and then looking back at all their amendments since 1990. The CCH research network and their (older) paper volumes were useful in this regard, as well as the Lexis-Nexis and Westlaw databases. Appendix 3<sup>11</sup> details the incorporation and franchise tax rates for the jurisdictions that impose them differentially for firms incorporated therein. In cases where incorporation has no effect on the tax, I omit the rates. When the cap on the tax is lower than 10,000 dollars I just list the cap. I have gone back as far as 1990 and thus list any previous rates that may have been in effect since then. Note that while the tax is often a small percent of the base, the base for the public firms is often in the hundreds of millions or billions. Data for the firm tax base is taken from compustat (or disclosure CDs). Note, however, that the authorized shares are approximated by the total number of shares issues. Thus the tax amounts are biased downward. The necessary assumption made here is therefore that there is no clear systematic bias (correlated with the price elasticities) in the gap between authorized and issued shares.

## **3.3 SCIT: A Product Characteristic**

### **3.3.1 SCIT: Background**

The third tax considered, the State Corporate Income Tax (SCIT), is different in that it is not closely linked to incorporation. The SCIT is apportioned between the states with which the firm has "nexus", which, while generally established by incorporation, can also be established by having property or a place of business in the state (a commonplace reality when conducting business therein) - using a formula weighting sales, employment and property. The apportionment base largely overlaps with the nexus base. Non business income is taxed at the home state. This home state is also not necessarily the state of incorporation. Furthermore, some states have a "throwback rule", <sup>12</sup> which stipulates that if there is no tax in the states in which the income is generated (usually where the product or service is sold), then the income is "thrown back" for tax purposes, to the state from which the product or service was shipped or provided. Here too, the determination of this state will likely be related to the place of income generation

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<sup>11</sup>Will be available on my website.

<sup>12</sup>Arizona, Connecticut, Delaware, Florida, Georgia, Iowa, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Nevada, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Virginia, Washington, West Virginia, and Wyoming do NOT have this rule.

and not incorporation. There is a physical presence criterion. Finally, there is the issue of the difference in reporting criteria across states. For example, Delaware does not tax intangible property, which incentivizes firms to establish a subsidiary in Delaware with trademark rights and to funnel significant earnings into this (untaxed) subsidiary. These types of phenomena have encouraged states <sup>13</sup> to pass combined reporting laws by which all income from all subsidiaries is reported together and taxed together. This may facilitate more deductions of losses across firm parts, but also combats questionable transfers of income to subsidiaries located in favorable (tax) jurisdictions. However, once again, this is all related to the corporate income base, and therefore should not directly affect incorporation.

There is, however, likely a connection between the location and domicile of a corporation. These decisions are often made together. In other words, firms may weigh the incorporation features jointly with the location features. The SCIT also do affect many of the "tax ratings" of the states, which do not explicitly and transparently separate taxes by their varying incidences (i.e. by whether they require physical activity in the state). They contribute to the overall "feel" of the tax burden therein - a factor which may have an effect as well<sup>14</sup>. Firms may also "punish" states that are taxing them at high rates by leaving. Furthermore, there are situations in which a firm may not have nexus to the state (other than through incorporation), but may still owe the state a significant amount of taxes should nexus be established. Such may be the case if sales made in the state are the only connection to it<sup>15</sup>. In these cases incorporation may indeed have an effect. Finally, it is commonly perceived that there is gaming of the system in a myriad of ways, some of which may indeed relate to this choice of incorporation.

### **3.3.2 SCIT: Data**

The SCIT rate were manually collected and coded from the hard copies of each year's Book of States. A look at the data in Appendix 4<sup>16</sup>, reveals wide variance in the cross section of rates, and many changes over time.

## **3.4 State Laws**

### **3.4.1 Background**

The governance laws take the form of directly granting shareholders more voting power and say in the corporation and limiting the benefits and discretion of management and also of making takeovers - which can be seen as alternatives to the current management - more or less difficult. See definition of all laws in appendix A1. State laws can be categorized into those that are

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<sup>13</sup>Alaska, Arizona, California, Colorado, Hawaii, Idaho, Illinois, Kansas, Maine, Minnesota, Montana, Nebraska, New Hampshire, New York (recently adopted), North Dakota, Oregon, Texas, Utah, Vermont and West Virginia (recently adopted), have combined reporting laws.

<sup>14</sup>See for example [www.learnaboutlaw.com](http://www.learnaboutlaw.com) (visited 7/31/08)

<sup>15</sup>The Commerce Clause in the Constitution is generally seen as prohibiting states to tax firms from other states solely due to their selling to residents of the state.

<sup>16</sup>Will be available on my website.

more or less pro shareholder rights. However, there is some theoretical ambiguity in the overall potential effects of the laws (compare Kahan (2006)). Thus, for example, provisions like control share cash-out or fair price provisions, protect shareholders, but in doing so also make takeovers more costly. There is a trade-off and such provisions are harmful only if their bite is primarily regarding shareholder wealth enhancing takeovers. It would indeed be surprising to find so many uniformly good or uniformly bad laws successfully passed in many states. It is of course possible that at least some of these laws would increase shareholder premiums conditional on a takeover occurring and in expectation be value enhancing. However, the prevalent opinion in the legal literature (which likely shapes perceptions in firms), largely resulting from event studies of the stock market reaction to the passing of takeover laws, is that the laws are shareholder wealth decreasing (see Romano, 1983, Karpoff and Malatesta 1989). A separate study (and model) is needed in order to rate the heterogenous effects of the choice of laws on the different firms. In the context of this paper I estimate the varying preferences for these laws and then discuss the implications of these preferences, which are influenced by the beliefs we have as to the desirability of the laws.

Furthermore, there is variation in the status of laws - mandatory or enabling - and even within the enabling laws there are differences in terms of the quorum required within a firm to opt out of them. Both mandatory and enabling laws likely influence firms, but in different ways. Opting out of these laws is rare (see for example Subramanian 2001), and defaults behaviorally do matter (compare for example Madrian and Shea, 2001). Indeed, corporate law - by and large - is enabling. However, laws represent the political consensus reached in the state and the foundation and direction upon which other legislation and judicial decisions and interpretations are made. These laws serve as the background for negotiations between managers and shareholders (when there are - as there often are - conflicts of interest). And thus the differential status given to these laws in different jurisdictions reflects different policy and a different legislative background upon which the complete firm specific governance structure is drawn.

### **3.4.2 Data**

The current versions of state laws can be found in Lexis and Westlaw. Westlaw is particularly good in that it tracks many of the changes over time in the laws and so it facilitates the construction of a panel. Given the incompleteness of these sources, as well as the varying structure and language of the laws in the 51 US jurisdictions, I used a variety of other sources as well: For some of the laws, the Model Business Corporations Act: Annotated, has (incomplete) comments on the states adopting the provisions of, or similar provisions to, those included in this codex. Many of the laws related to takeovers are also tracked by the State Takeover volumes published by the IRRC (see for example, Pinnell 2000). There are also up to date takeover watch databases (including for example SharkRepellent.net), which track some of the laws relating to takeovers. Following the previous legal literature, I found it useful to reduce the dimensionality and exposition of my results by combining two groups of laws into indices:

The first, the ATS index, is composed of the five antitakeover statutes found to be important by Bebchuk and Cohen (2003). These include control share acquisitions, expanded constituencies, fair price, business combination and poison pill endorsement laws. As explained in the appendix, these laws, while often relating to shareholder rights more generally, offer protections to firms from takeovers. Control share acquisition laws require a disinterested shareholder vote to grant a new large shareholder voting rights. This shareholder vote is an impediment to takeovers, but also provides some protection to shareholders against coercive bids, and thus some see this law as positive despite its antitakeover nature. Expanded constituency laws grants management discretion to consider other firm constituencies, such as employees and suppliers when considering a takeover offer. This provides an easily manipulable legal base directors can use to resist value enhancing takeovers<sup>17</sup>. Fair price provisions limit the range of prices bidders can pay in two tiered offers and thus reduce the bargaining power of bidders. Shareholders are more likely to resist takeovers since they do not risk facing a significantly lower price in the second round. This constrains potentially beneficial acquirers in situations in which the stock price is in decline. Business combination laws impose a moratorium on certain transactions between large shareholders and the firm, unless the transaction is approved by the board of directors. This grants management the power to limit the benefits and synergies of mergers and thus reduces the overall desirability of the takeover. Finally, poison pill endorsements are a seal of approval given by the state for the use of poison pills, which are a host of mechanisms that grant the holders of target stock the ability to make takeovers more difficult. Poison pills are seen as a crucial component in modern takeover resistance strategies.

The second, the MAND index, follows, Kahan 2006, and includes four laws relating to the shareholder-manager balance of power, where states differ in the flexibility given to firms to opt out of them. Following Kahan 2006, states are coded as having the law if they impose the provision as a mandatory rule. These include cumulative voting, limits on loans to officers to directors, the restriction of limits on the personal liability of directors, and merger vote majority requirements. Cumulative voting allows shareholders to concentrate their vote and thereby facilitates the ability of minority shareholders to elect directors. These provisions are thus seen to increase shareholder rights. Limits on loans to officers and directors often impose personal liability on the recipients of loans or procedural requirements for the approval of these loans. The restriction of limits on the personal liability of directors are laws which do not allow firms to eliminate the personal liability of directors for a breach of duty. Finally, merger vote majority requirements are a limitation on the procedure by which mergers are approved<sup>18</sup>.

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<sup>17</sup>This interpretation follows that common in the legal literature. However, recent research has suggested that there are situations in which broadening the firms' objective can be beneficial (see for example Allen and Gale 2002, Allen, Carletti and Marquez 2007). The assumption thus made here is that the laws as they are written and applied in the US (or at least as they are construed by firms and shareholders), are prone to managerial manipulation. Future research is needed to better determine the precise effects of such laws and the scenarios in which they are desirable.

<sup>18</sup>This law is somewhat different in that it could also be conceivably coded as an antitakeover statute. However, the difference here is that a state is coded as having the law if it imposes it as a mandatory provision.

Following Wald and Long, 2007, I also track the laws relating to the requirements of asset to liability ratios to make payouts to shareholders (found there to influence firm incorporation decisions). Finally, I look at the presence of laws recognizing actions of managers that are made outside the scope of their authority, *ultra vires*, as "firm actions" for which the firm is responsible. In the absence of these laws, claims could be made regarding the voidability of corporate actions beyond the scope of the charter. Thus the existence of these laws imposes more responsibility on corporations for the actions of their agents<sup>19</sup>.

Indeed, while most of the changes in these laws were made in the late 1980's and early 1990's, there are changes over the entire time period studied. One of the most interesting changes concerns the special rules regarding loans made to officers and directors. The federal intervention in the passing of the Sarbanes-Oxley act introduced a general prohibition on such loans, thereby imposing this restriction across jurisdictions. This is an example of a (limited) federal intervention which has the effect of reducing the variance in incorporation implications, an intervention we are likely to see more of if the current regulatory proposals materialize. I return to this in section 6 below in discussing policy proposals.

## **3.5 Court Quality**

### **3.5.1 Background**

Much of the hype for the corporate law hot spots, and for Delaware in particular, concerns the relative quality of their court systems. Delaware boast a unique five member chancery court which has exclusive jurisdiction over, and hence specialization in, corporate law disputes. Furthermore, some claim that the Delaware court contributes to Delaware's supremacy by administering law that is predictable but not easily replicable. While these comments are directed at Delaware's unique court, they demonstrate more generally that the features of the courts matter to firms. And since, as mentioned, these are influenced by incorporation, I explore their impact in the incorporation decision.

### **3.5.2 Data**

Ideally, to capture the benefits of the better systems, we would like measures for the overall quality of the decisions (i.e. for whether it was the "correct" decision), for any systemic biases in decisions, for the time it took to administer them, and relatedly, for the expenses that were required to get these "correct" decisions. Obviously, these measures are not available. There have been a number of studies assessing and comparing the quality of the state courts (see Choi et al 2008 for a review). These studies employ different methodologies and do not reach similar conclusions. I approximate for the quality or nature of the legal systems using two databases

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<sup>19</sup>I also experimented with other laws including antigreenmail restrictions, compensation restrictions, control share cash out provisions, the adoption of the Model Business Corporation Act, severance pay, and labor contract provisions (see definitions in the appendix). However, I omit these from the analysis since they generally were not significant, or lacked sufficient cross section variability.

with proxies that seem most relevant for the questions at hand (given the data limitations): The first includes the Chamber of Commerce ranking and score, which are based on surveys of senior lawyers (in house counsel) at large corporations (with annual revenues of over 100M). These measures are commonly used (see for example Dammann and Schundeln 2007, and Kahan 2006) to rate the states, however, they suffer from several limitations. The first, which is more technical, is that they only go back to 2001 (and hence my panel is just for 2001 – 2007), and there are some differences in the survey methodology and scoring even over this time period. The second is that they do not relate specifically to corporate law, but rather to more general categories of laws (such as torts and contracts, criminal law, and so on). The third - and what invites much criticism in the literature - is that given that they originate exclusively from the in house legal counsel at large firms, they are likely biased towards the preferences of management in these firms (to which the legal counsel often report). The second database comes from the State Court Statistics Project, which is conducted by the National Council for State Courts (NCSC) and disseminated by the ICPSR (I collected the most recent data from the NCSC website and thus have the years 1993 – 2005). I look at both the appellate and trial level statistics: I include the following measures (for both the appellate and trial levels, compare Dakolias, 1999): The first is the ratio of civil cases disposed (whether by throwing out the case or deciding it for or against the appellant) to civil cases filed (a "clearance ratio" and an "appeals clearance ratio", respectively). For states with more than one appellate court, I average the measures. The second is the clearance ratio for all cases (not just civil). I experimented with this measure since many courts have jurisdiction over many areas of law, and hence their workload and efficiency may be influenced by the caseload in all of these areas of law. The third is the ratio of the total number of judges in the courts to the total resident population. Finally, I include the ratio of appeals that were successful (where the decision was reversed or modified) to those that were not (where the appeal was dismissed or the trial level decision was affirmed). All measures at time  $t$  are used to analyze the (consequential) behavior at time  $t + 1$ .

These measures proxy for how efficient the systems are at getting rid of cases (how back-loaded they are), where, for many of these disputes, the time the case is in trial is a very significant cost determinant (and, consequently, likely to significantly influence litigation behavior). These measures are by no means constant (even though in equilibrium the workload must be balanced). Courts tend to have "better" and "worse" years in handling their workloads. This can obviously also be influenced by the number of judges that are in office (which motivates the inclusion of the number of judges per resident population measure separately). Finally, the appeal success rate is an (imperfect) measure for a variety of litigation climate indicators, including how much the trial level courts are respected (by the higher court levels) as well as how likely appeals are to be filed (although this is a more complicated equilibrium result influenced by the success of settlements out of courts, beliefs, etc).

## 3.6 Firm Characteristics - Decomposition of the Heterogeneity

Having described the main characteristics of the incorporation product, I now move to discuss the data sources used and the motivation for the construction of the observed firm heterogeneity. In addition to the data on firms and IPOs discussed above, these relate to the structure of firm ownership, the industry concentration, and the characteristics of its management and directors:

### 3.6.1 Ownership

The dramatic changes in the percentage of institutional holdings alters the balance of power between shareholders and management. Institutional owners are generally seen as more sophisticated owners, especially when they hold significant shares, and thus are more likely to have a stronger say in the firm. Institutional investors are at least partially responsible for the "greater involvement of boards of directors and shareholders" (Holmstrom and Kaplan 2003). As mentioned, their presence has also been found to be related to the abnormal returns earned by firms with better internal governance<sup>20</sup>. Accordingly, I model the heterogeneity across several ownership dimensions:

### 3.6.2 Institutional Holdings: Data

Thompson's Reuters CDA/Spectrum Institutional (13f) Holdings, has data for the stock holdings of all institutions managing 100M dollars or more<sup>21</sup>. Using this data, Cremers and Nair (2006, CN) look at two measures of internal governance - the percent held by the firm's largest institutional block-holder (which are shareholders with more than 5%), and the percent held by the 18 largest public pension funds. CN see public pension funds to be more "free from conflicts of interest and corporate pressure" and as "aggressive shareholder activists" (compare Guercio and Hawkins (1999)). They also see institutions holding larger shares to have incentives "to monitor the management and pay for part of the gains that occur through takeovers" ...potentially being "crucial to facilitate" and thus working "in tandem with the market for corporate control". Following their work, I construct four measures of ownership, including their two measures<sup>22</sup>, as well as the fractional ownership by all institutional investors, and the total fractional ownership of blockholders with more than 1%. The reporting periods differs by institution (it ranges from quarterly to yearly), and thus when there is more than one reporting quarter they are averaged.

Indeed, the existence of such institutional investors implies a selection by them, which is an endogeneity concern in the sense that while it is interesting to see which stocks are picked by institutions, we would also like to randomly assign them to different firms and trace these firms'

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<sup>20</sup>Interestingly, the growing strength of sophisticated investors dampens the concern for agency problems between the shareholders and management and increases concerns of agency problems between larger and smaller shareholders.

<sup>21</sup>There may be some omissions for small holdings under 200,000 dollars.

<sup>22</sup>I was able to identify 15 of their funds in my data.

differential choices and performance. This endogeneity has recently been discussed and dealt with by using the inclusion in the Standard & Poor's (S&P) 500 as an instrument (see Aghion, Van Reenen and Zingales, 2008 and Sapra, Subramanian and Subramanian 2008), an approach I follow below.

### **3.6.3 Director Holdings and Characteristics**

The IRRC Director's database contains director level data yearly from 1996 – 2006 from which I aggregated (to the year level), the following variables: the average director age; the percent of reported Asians, African Americans, Whites, Hispanics, and Native Americans; the proportion of women, the average number of other major boards the directors are on; the average number of years served (I control for the firm age); the average number of years left (if there is a fixed term); total shares held; total voting power held; the proportion of the directors that are linked to the firm; the proportion of independent directors; the proportion up for election; the proportion that attended less than 75% of the meetings; the proportion that own less than 1%; and the proportion that are grandfathered upon retirement/tenure.

This data is supplemented with data from the "Corporate Library" (which goes from 2001 – 2007) on the CEO compensation and characteristics, total number of directors, and the overall compliance levels with SOX and with the loan requirements in SOX.

## **3.7 Internal Governance**

Complete data on governance provisions in firm charters is taken from the IRRC database for the years 1990 – 2006. This is the data used by Gompers (2003) expanded to 2006 (they used the data up to 1998) and is generally published on a bi-annual basis. This data does not cover all of the publicly traded firms (it generally covers several thousand a year). It is "derived from a variety of public sources including corporate bylaws and charters, proxy statements, annual reports, as well as 10-K and 10-Q documents filed with the SEC. The IRRC universe is drawn from the S&P 500 as well as the annual lists of the largest corporations in the publications of Fortune, Forbes, and Businessweek. The IRRC sample was expanded by several hundred firms in 1998 [and has been expanding consistently since then through additions of some smaller firms and firms with high institutional-ownership levels...even in 1990 the IRRC tracked more than 93 percent of the total capitalization of the combined New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and NASDAQ markets." (Gompers 2003). As mentioned there is a GIM index which is publicly available. See appendix A2 for a description of the variables. The most recent sample is taken from the SharkRepellent website which tracks more firms (although does not go back historically).

### 3.8 Firm Industry Concentration

Previous studies have not found industry controls to produce any clear or meaningful conclusions. However, the recent work by Giroud and Mueller (2008) suggests that governance may matter (more) in noncompetitive industries. Thus a final characteristic of the firm is the concentration of the industry in which it operates, the Herfindahl index of the SIC code, as provided by compustat or the U.S. Bureau of Census (which accounts for private firms as well). I experimented with the 2, 3 and 4 digit codes, but generally use the 3 digit code, following the existing literature.<sup>23</sup>

## 4 Modeling The Demand

### 4.1 Formulation and Specification

Firms have the following utility function from each potential state of incorporation:

$$u_{ijt}(x_{jt}, y_{jt}, p_{jt}, s_{it}, \xi_{jt}) = x_{jt}\beta_i + y_{jt}\gamma_i - \alpha_i p_{ijt} + \phi g_{ijt} + \eta m_{jt} + \xi_j + \Delta\xi_{jt} + \varepsilon_{ijt}. \quad (1)$$

$x_j$  is a vector of state laws, which includes the two indices ATS and MAND as well as the payout and ultra vires laws and the state corporate income taxes;  $y_j$  is the vector of court qualities;  $p_{ij}$  are the franchise taxes, and the incorporation taxes (note that these taxes are firm specific).  $g_{ij}$  is the geographical distance - the physical distance from the incorporated state to the home state;  $m_j$  is a dummy variable indicating whether this product is the "home state" for the firm. Naturally, all characteristics have a time subscript as well, reflecting their changes over time.  $\varepsilon_{ijt}$  is the commonly used logit error. Firms receive independent draws from a type-two extreme value distribution in each period.

As is common in these specifications, the individual specific coefficients capture the heterogeneity in firms and the (plausible) variation in tastes, for the laws and process. Note that the price and geography characteristics, by construction, differ for different firms.  $\xi_j$  are the unobserved benefits from being incorporated in the system (commonly assumed to be enjoyed by all firms)<sup>24</sup>. In essence, this is a state of incorporation (product) fixed effect. It captures the average (firm specific or aggregate) preference for the system. The  $\Delta\xi_{jt}$  is then the time-specific deviation from the average  $\xi_j$ . In this respect this application nicely matches the characteristic based demand approach. Products (in my model and as observed by firms) are a bundle of characteristics, and these characteristics vary over time.

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<sup>23</sup>We do however see a potential caveat in merely analyzing the concentration of the industry. If indeed the threat to management is the driving force, then a measure for how competitive the market for (comparable) managers should be sought. Some (especially high ranking) positions across different industries, compete in the same market for managers.

<sup>24</sup>Note that the lack of a firm specific subscript  $i$ , on  $\xi_{ji}$ , or a model for the distribution of preferences for the unobservable is restrictive only as we depart from a completely flexible preference structure for the observed characteristics. Compare Nevo, 2000.

I began with a specification with 51 product choices (all US jurisdictions) and an outside option of incorporating abroad. However, this model was very difficult to estimate, given that in my database of public firms there are very few states that attract a significant number of out of state firms. Thus, in order to achieve convergence of my estimators I limit the choice set. I assume that firms choose to incorporate at home, in one of 10 out of state options, or in the outside option, which is anything else. Including the home state as one of the options allows me to keep most of the variation in the product characteristics of all jurisdictions (and the absence of these characteristics abroad). This difference in the choice sets adds to the variation that comes from firms switching their incorporation choices, since structurally similar firms face different choices given their exogenous physical location. The 10 out of state options include any state that has more than 1% of the firms (at any point in my sample period) - which includes Delaware, Nevada, Maryland, Florida, Colorado, and Massachusetts - as well as California - home to many firms, and known for having very little takeover legislation, and New York, also home to many firms. I also include Pennsylvania, which historically had more firms, and Wyoming, which has made efforts recently to promote itself. As can be seen in Figures 6 and 7 in the appendix most of these states have seen significant shifts in the shares of firms they attract over my sample years, from the general public firm pool, and from IPO firms.

Firms are assumed to observed all product characteristics and weigh them in their location choice. We assume the utility from the outside option is:

$$u_{i0t} = \xi_{0t} + \pi_0 D_{it} + \sigma_0 \nu_{i0t} + \omega_0 m_{0t} + \varepsilon_{i0t}. \quad (2)$$

Following the standard assumptions we normalize  $\xi_0$  to zero, thus the benefits from incorporation in one of the 11 choice options are relative to the normalized outside option of going elsewhere.  $u_{i0} = 0$  so the utilities represent the difference between the particular chosen good and the outside good. This assumption implies that when choosing one of the states not accustomed to hosting out of state firms or to incorporate abroad, firms are doing something different than what my model captures, which I normalize to a utility of zero<sup>25</sup>.

Note, that much of the firm heterogeneity is observed. Thus, we can model the random coefficients as:

$$\begin{pmatrix} \alpha_i \\ \beta_i \\ \gamma_i \end{pmatrix} = \begin{pmatrix} \alpha \\ \beta \\ \gamma \end{pmatrix} + \pi D_i + \Sigma \nu_i \text{ with } \nu_i \sim N(0, I_{k+1}).$$

The  $D_i$  captures the firm structure heterogeneity in financial profile, ownership, and industry, as discussed above. The  $\nu_i$  capture unobservable firm heterogeneity (where  $\Sigma$  captures the scale), i.e. other components not captured in the  $D_i$  vectors. This of course is much more flexible and general than a nested logit model, where the home vs. one of the other products "nest" is

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<sup>25</sup>I experimented with several other measures of the outside good, including dropping firms making choices outside these 11 options, and using incorporation abroad, or incorporation in one of these states as an outside option, and found my results to be similar.

captured with the inclusion of the "home" dummy variable for the home product.

To simplify notation, we define  $x_j = (x_j, y_j)$ , the variables for which there are random coefficients,  $y_j = (g_j, m_j)$ , and  $p_{ij} = (p_{ij}, g_{ij})$  the variables for which there are no random coefficients, and:

$$\begin{aligned}\theta^1 &= (\beta, \gamma) \\ \theta^2 &= (\eta) \\ \theta^p &= (\alpha, \phi) \\ \theta^o &= (\pi) \\ \theta^u &= (\Sigma)\end{aligned}$$

So:

$$u_{ij}(x_j, y_j, \xi_j) = \sum_k x_{jk} \theta_k^1 + \sum_h y_{jh} \theta_h^2 + \xi_j + \Delta \xi_{jt} + \theta^P p_{ijt} + \sum_{kr} x_{jk} D_{ir} \theta_{rk}^o + \sum_{kl} x_{jk} \nu_{il} \theta_{kl}^u + \varepsilon_{ijt}$$

Thus, each characteristic with a random coefficient has  $(1 + R + L)$  coefficients: the average coefficient,  $R$  coefficients on the observable firm structure demographics and  $L$  coefficients on the unobservables. For simplicity  $L = 1$  so we have one unobservable per product characteristic.

Given the variation in the product characteristics over time, I include 11 dummies for each of the choice options. These dummies subsume the  $\xi_j$ , thus restricting the endogeneity concerns to the time specific - product specific unobservable,  $\Delta \xi_{jt}$ , not captured by and related to the variables in my model. Thus, the specification becomes:

$$u_{ijt}(x_j, y_j, D_i, \xi_j, \Delta \xi_{jt}) = S_j + \sum_k x_{jk} \theta_k^1 + \sum_h y_{jh} \theta_h^2 + \Delta \xi_{jt} + \theta^P p_{ijt} + \sum_{kr} x_{jk} D_{ir} \theta_{rk}^o + \sum_{kl} x_{jk} \nu_{il} \theta_{kl}^u + \varepsilon_{ijt}$$

where  $S_j$  are the state dummies.

Firms that choose state  $j$  are those for which state  $j$  provides them with the highest utility, i.e. those belonging to the set:

$$A_{jt}(x_t, p_t, \delta_t; \theta) = \{(D_i, p_{ij}, \nu_i, \varepsilon_{it}) | u_{ijt} \geq u_{ilt} \quad \forall l \in J\}. \quad (3)$$

Thus, the individual choice probabilities are:

$$\Pr(j|D_i, \theta, \delta) = \int_{\nu} \frac{\exp[S_j + \sum_k x_{jk} \theta_k^1 + \sum_h y_{jh} \theta_h^2 + \Delta \xi_{jt} + \theta^P p_{ijt} + \sum_{kr} x_{jk} D_{ir} \theta_{rk}^o + \sum_{kl} x_{jk} \nu_{il} \theta_{kl}^u]}{1 + \sum_q \exp[S_q + \sum_k x_{qk} \theta_k^1 + \sum_h y_{qh} \theta_h^2 + \theta^P p_{iqt} + \Delta \xi_{qt} + \sum_{kr} x_{qk} D_{ir} \theta_{rk}^o + \sum_{kl} x_{qk} \nu_{il} \theta_{kl}^u]} f(\nu) d(\nu).$$

## 4.2 Endogeneity: Discussion

Identification comes from many firms selecting from a wide menu of characteristic bundles, where there are changes over time in the product characteristics, and also much variation in the product choice sets faced by the different firms. Indeed, firms come from all jurisdictions (and

abroad). Identification of the standard deviation of the random coefficients comes both from individuals switching in response to changes in the characteristics, as well as from structurally similar individuals facing different choices sets. This is the result of the changes over time in the options afforded to structurally similar firms, as well as a result of my model design whereby the comparisons made are with a varying home option and a fixed set of 10 out of home alternatives. The proportion that switch (or behave differently) characterize the shape of the distribution of the unobserved heterogeneity in the preferences.

The ability to include state of incorporation dummies controls for the  $\xi_j$  which is the chief source of endogeneity in these models, reduces most of the endogeneity concerns:

The prices, the variation in tax rates<sup>26</sup>, likely reflect the advantages different states offer to the firms located therein, however, as mentioned, most of the price variation is in the differential choice sets and base of the different firms. The infrequency of tax changes reduces the need (and in fact ability) to instrument for taxes.

There are standard "default" IO instruments that come from the structure of the setup (see BLP, 1995, Hausman et al 1994, and Hausman 1996). These include (in the context of our application) the observed characteristics of the states that are assumed to be exogenous, and the sum of the values of the same characteristics of the products offered by other states<sup>27</sup>. These instruments present particular challenges here in that they rely heavily on the structure of the game played by the states, a structure very difficult to specify, given the stagnation in state action. Accordingly, I was unable to use them to explain the broad variation in the taxes paid (given the state base and rate as well as the individual firm's tax liability). I experimented with using the variation in overall state tax revenue, since these influence the tendency to change the price, but are (likely) not directly related to changes in the unobserved product characteristics captured in the  $\Delta\xi_{jt}$ , as they are chiefly motivated by the many other budgetary factors. However, here too, unsurprisingly, I was unable to fit a significant first stage. Taxes are thus treated as exogenous, as are the state laws and court structure (compare the discussion in Nagar et al 2005).

The demographics are, in the context of this model, a decomposition of the heterogeneity of the firm. However, econometrically, they are no different from product characteristics in that their interaction with the characteristics need not be correlated with the  $\Delta\xi_j$ . As mentioned above, ownership by institutional shareholders may be endogenous, in the sense that while sophisticated shareholders help police management and shape firm preference, they may also tend to choose firms that are expected to perform better given their being in a jurisdiction which receives a particularly favorable time-specific shock and this shock may be correlated with their preference for incorporation features. Here, as mentioned above, I use the instrument

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<sup>26</sup> As mentioned only the incorporation tax and the franchise tax are treated as prices. SCIT is a characteristic.

<sup>27</sup> Note that the third set of instruments in BLP, the sum of the characteristics of the products offered by other states, as well as the instruments offered in Hausman et al (1994) and in Hausman (1996), the price of the same product in other markets, are not relevant here, since each state offers one unique product. The difference in price here is a form of (third degree) price discrimination in that firms cannot choose different products at different prices within a given state.

proposed by Aghion et al (2007), inclusion in the S&P 500. Inclusion in this index has a large random component (there can only be 500), unrelated to the fundamental performance of the firm, but the assumption is that nonetheless it is the inclusion in the S&P 500 itself that generates a kick in institutional ownership. Firms included in this index attract institutional funds for a variety of reasons<sup>28</sup>. Thus I use a regression discontinuity approach whereby I include a flexible function of market value<sup>29</sup> and a dummy for inclusion in this index. The assumption is that (flexibly) controlling for market value, being in or out of the index is largely random and thus this variation can be used to look at the effects of randomly increasing the share of institutional shareholders. Indeed, I will assume that this is the key endogeneity correction needed. However, the methodology outlined here can easily accommodate the treatment of endogeneity in any of the other product characteristics or firm attributes<sup>30</sup>.

### 4.3 Estimation

I outline and follow the control function approach proposed by Imbens and Newey (2008), and implemented by Blundell and Powell (2004), and Petrin (2006). According to this approach, we write the endogeneity treatment as follows:

Assume that for the endogenous institutional ownership  $D_{eit}$

$$D_{eit} = E[D_{ei}|z_{ijt}] + \zeta_i \quad (\text{FS})$$

where  $z_{ijt}$  are the all exogenous variables (and instruments). Note that this includes all characteristics of all choices.

Form

$$\hat{\zeta}_i = D_{ei} - \hat{D}_{ei}$$

by taking functionals of the residuals from the estimation of the first stage. Table 2 shows that all ownership measures are significant and that the first stage works well<sup>31</sup>. The R squared are relatively high<sup>32</sup>.

We include and estimate an  $S_j f(\hat{\zeta}_i)$  for each product. The significance of these product specific residuals is evidence of endogeneity, assuming the exclusion restrictions on the instruments are valid. In addition, assuming one scalar error per product, a well defined inverse for  $D_{ei}$ , the general single equilibria across markets assumptions, and that conditional on the  $S_j f(\hat{\zeta}_i)$  we are left with a similar specification and logit error, the inclusion of this control variable essen-

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<sup>28</sup>Openly indexed funds are more likely track it, managers (in open and closed funds) are benchmarked against this index, and fiduciary duty laws influence such portfolio selection. See Aghion et al 2007.

<sup>29</sup>I chose levels to control for the linear relationship with market value that discretely breaks with the discontinuity at the index. Controls are added for a power series of market value.

<sup>30</sup>Endogeneity of the director and manager characteristics was not dealt with in detail given my finding below of their not being instrumental in the incorporation decision.

<sup>31</sup>There is of course a different first stage for each specification of the model. Table 2 includes controls for the litigation variables.

<sup>32</sup>Over 15% for the 1% block and 24% for the total institutional share measure, 15% for the pension block and 17% for the 5% block measure.

tially "controls" for the parts of the endogenous regressors that are correlated with the  $\Delta\xi_{jt}$ , allowing for consistent estimation of the coefficients, and the direct use of maximum simulated likelihood.

First, we construct the following likelihood:

$$L(D; \delta, \theta) = \sum_{i=1}^N \sum_{t=1}^T \log \int_{\nu} \sum_{j=1}^J \left( \frac{\exp[S_j + \sum_k x_{jk} \theta_k^1 + \sum_h y_{jh} \theta_h^2 + \Delta\xi_{jt} + \theta^P p_{ijt} + \sum_{kr} x_{jk} D_{ir} \theta_{rk}^o + \sum_{kl} x_{jk} \nu_{il} \theta_{kl}^u + S_j f(\hat{\zeta}_i)]}{1 + \sum_q \exp[S_q + \sum_k x_{qk} \theta_k^1 + \sum_h y_{qh} \theta_h^2 + \theta^P p_{iqt} + \Delta\xi_{qt} + \sum_{kr} x_{qk} D_{ir} \theta_{rk}^o + \sum_{kl} x_{qk} \nu_{il} \theta_{kl}^u + S_q f(\hat{\zeta}_i)]} \right)^{1(jit)} f(\nu) d(\nu).$$

Then we directly maximize the sample analog:

$$SL = \sum_{i=1}^N \sum_{t=1}^T \log \frac{1}{R} \sum_{r=1}^R \sum_{j=1}^J \left( \frac{\exp[S_j + \sum_k x_{jk} \theta_k^1 + \sum_h y_{jh} \theta_h^2 + \theta^P p_{ijt} + S_j f(\hat{\zeta}_i) + \sum_{lr} x_{jtl} D_{ir} \theta_{rl}^o + \sum_{ko} x_{jtk} \nu_{ito} \theta_{ko}^u]}{1 + \sum_q \exp[S_q + \sum_k x_{qk} \theta_k^1 + \sum_h y_{qh} \theta_h^2 + \theta^P p_{iqt} + S_q f(\hat{\zeta}_i) + \sum_{lr} x_{qtl} D_{ir} \theta_{rl}^o + \sum_{ko} x_{qtk} \nu_{ito} \theta_{ko}^u]} \right)^{1(jit)} f(\nu) d(\nu).$$

This is the probability of observing (all of) the choices in the data, given the structure above. The right-hand-side does not have an analytical solution (given the assumed normal distribution for  $\nu$ ) and has to be simulated. Generally we average over  $R$  draws from the assumed (normal) distribution, using different methods to ensure proper coverage of the domain of integration. We then obtain estimates of  $S_j$ , and the  $\theta$ s, controlling for clustering and a host of starting points, and directly test and control for endogeneity.

**Table 2**

(OLS regression clustered at the state level, controlling for all characteristics of all products)

	1% Block	5% Block	Total Inst. Share	Pension Block
	(1)	(2)	(3)	(4)
SP500	.098*** (.017)	.013** (.005)	.240*** (.037)	.018*** (.001)
Market Value(billions)	-.003*** (.0005)	-.002*** (.0001)	-.0004 (.002)	-.00008*** (.00003)
Controls	Yes	Yes	Yes	Yes
Obs.	128002	128002	128002	128002

## 5 Results and Discussion

In this section I begin by looking specifically at the full model and then look specifically at two tax changes in 2003 to confirm the tax results and to "zone in" on the populations for which taxes are likely to most matter.

## 5.1 Demand Estimation

As mentioned above, the huge dimensionality of the data precludes the possibility of discussing all combinations of specification. Thus, in what follows, I will try to give a representative sample of the results. Note that the estimates are identified up to scale, given the normalization above. Thus, the focus should be on their relative magnitudes (ratios) rather than on their absolute size. Table 5 below details the summary statistics for the relevant variables in the specifications discussed below.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	N
ATS	3.094	1.597	1921327
MAND	0.623	0.781	1921327
Payout Restrictions	0.925	0.316	1921327
Ultra Vires	0.560	0.496	1921327
Institutional Ownership	0.151	0.207	1938536
Industry Concentration	0.2	0.209	1938536
Age (Founding)	24.501	24.788	428787
Age (IPO)	6.233	5.571	798019
SCIT	0.065	0.035	1823545
Incorporation Taxes (Thousands)	34.065	229.691	1938536
Venture Backed	0.155	0.362	849924
Insiders After IPO	36.606	21.626	318099
Clearance Ratio (Appeals)	1.079	0.261	1249885
Clearance Ratio (Trial)	0.843	0.185	1361846
Distance (Thousands)	1.344	1.063	1752226

Tables 1A and 3A present the several specifications. Note that with the inclusion of additional firm structure measures, the sample size decreases and thus, while the qualitative results are similar, the coefficients are not identical.

### 5.1.1 Preferences for States of Incorporation and Incorporation Characteristics

First, while most of the product fixed effects are insignificant, the fixed effects for the Home state and Delaware products are large, positive and significant. This reflects the preferences for being incorporated at home and in Delaware being the most common, but also suggest that despite the many variables in the specifications I present, there are still many residual unexplained characteristics that influence firm choice. These can include for example networks effects, the "prestige" of the Delaware jurisdiction and its unique court<sup>33</sup>, or a general reluctance to explore outside options in the case of firms preferring to stay at home.

Secondly, regarding the laws, on average, firms strongly prefer to have takeover statutes (the ATS index laws), and have a negative preference for the MAND index. This implies that,

<sup>33</sup>As discussed below, given the unique structure, I cannot separate the court effect from the Delaware fixed effect.

on average, firms prefer to not be constrained in the election of directors (through cumulative voting), or in the ability of managers to receive loans<sup>34</sup>. Similarly they prefer to have the option to excuse directors of personal liability and to not be constrained in the merger vote majority requirements. These combined suggest that, on average, managers have a strong say in the "firm" choice and the ability to insulate themselves.

As to the preferences for the court process, I find the only variables to matter significantly to be the clearance ratios at the appellate and trial levels<sup>35</sup>. As mentioned, these are proxies for the overall expected delay in the courts system when cases are backloaded from previous years. Firms seem to prefer busier, more backloaded courts. This could be explained by the insulation and deterrence an inefficient court system may offer, since it implies that cases will take longer (something large, deep pocketed, firms can afford), and thus justice, if and when served, will be costly. Interestingly, I do not find the Chamber of Commerce ranking or score, as well as the other variables discussed above to significantly influence the choice of jurisdiction<sup>36</sup>. These results (my findings regarding the clearance rates and the lack of significance of the other measures) contrast with claims made in the literature regarding the importance of the legal system to firm choice. However, I note that these results, which are the results of the variation across all jurisdictions, do not imply that the unique corporate tribunal in Delaware does not play a special role<sup>37</sup>.

I was unable to identify the two incorporation taxes separately, likely due to their multicollinearity, given their shared base, and thus I combined them. The incorporation tax variable represents the total tax implications for choosing a given jurisdiction, given the firm's location in the previous period. I computed the taxes using the rules in play in year  $t - 1$  with the tax base in year  $t$ . My reasoning is that given that I draw my sample once a year I cannot expect firms to have moved (in the data) in the year in which taxes change. Thus, in the context of the model above, my timing assumption is that at the beginning of each period firms observe the tax rates in each jurisdiction and form an expectation of what their tax base will be<sup>38</sup>. I also experimented with a tax measure based on last year's base and rate and found the results to be similar

As expected the demand is downward sloping. Note that given the large variance in tax

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<sup>34</sup>Although, as mentioned above, this ability is now uniformly banned by the SOX legislation.

<sup>35</sup>The specifications presented below are for the trial court congestion measure. The appellate measure is of a similar sign, but would require an argument based on the marginal deterrence of appeals. When both variables (and their interactions) are included I lose some power and the significance levels are lower.

<sup>36</sup>When adding the score and rank variables and thus reducing the sample size significantly we lose the significance of this variable. However, it is unclear that this last result is not simply a sample size problem, not reflecting the preference for this characteristic.

<sup>37</sup>Furthermore, we may worry about this variable being endogenous in that a massive migration to an attractive jurisdiction may bring with it an added burden to the courts that they have trouble accommodating. However, given that, for the majority of states, corporate law disputes represent only a fraction of the total burden on the courts, and that we generally do not observe any massive firm migration in a short period of time, it is unlikely that the burden on the courts will be endogenously determined.

<sup>38</sup>Note that this tax base is generally based on measures controlled by the firm, such as the number of authorized shares.

schedules, the tax measure is not a rate, but rather a total (firm specific price) in thousands of dollars. Any significant tax increase (or initial imposition of tax) could conceivably raise the tax liabilities by much more than several thousands and thus see a significantly large firm response. Indeed, it seems that this **choice** of jurisdiction greatly hampers the ability to collect high taxes, thus potentially explaining some of the state lethargy in this area.

These results are consistent with my findings below regarding the 2003 tax increases. However, the magnitude of the coefficients is much smaller. I suspect that, indeed, the main response to taxes comes when there is a more salient change (as was the case regarding the two most popular jurisdictions for "jurisdiction shoppers"), and less when the firm's base increases due, for example, to the increase in its authorized shares. In addition, as mentioned, there is often a penalty for moving in that firms will be required to pay the incorporation tax on their entire tax base (as apposed to on an increase in base if they stay in the same jurisdiction). When taxes are used to price the laws we get a rough NPV (using a 5% yearly discount rate) for the ATS laws of  $3.8M$  (for the average  $\beta$ ) and negative  $8.3M$  for the MAND laws. This suggests that while these laws matter, they do not matter very much. These are potentially intriguing conclusions. However, given that the taxes reflect the aggregate variation it is of course possible that taxes matter a lot for a subset of firms. In any case, it is clear that the laws do not matter all that much for a large segment of the firm population.

The SCIT are not significant when controls are added. As mentioned above, this is not surprising, and suggests that the large amount of gaming of the differential rates does not manifest in firm incorporation choices.

Finally, as expected the distance (measures in thousands of miles) negatively influences the incorporation decision. Indeed, Nevada is aptly termed "Delaware of the west" reflecting the general reluctance to have the incorporation state far away. A distant incorporation state would undoubtedly raise the firm's costs in that administrative requirements as well as any court proceedings would require a long and costly trip to the domicile state.

### 5.1.2 Firm Ownership

As mentioned, I experimented with 4 measures. The results for the 5% block are generally of a larger magnitude than those of the 1% block, which in turn are generally larger than those of the overall share. The total institutional shares measure was generally not significant. The public pension fund measure was generally not significant either (and at times not even of the same sign), thus questioning the link between these incorporation decision results and the above mentioned results on abnormal returns. I present the results from the 1% block specification, which includes more firms and has a stronger first stage with the instrument and thus seems the most representative. As mentioned, this is the total share of the firms' stock held by institutions that have shares of at least 1%. I discuss the results here, assuming my endogeneity controls are valid, and that I accurately capture the preferences of these "sophisticated" shareholders, and then return to discuss the different endogeneity corrections in section 5.2 below.

Overall, institutional shareholders display a stronger reverse preference for the antitakeover laws (the sign is negative and the absolute magnitude of the interaction is larger than the mean and so the combined effect, which is the sum of the two, is negative). This suggests that these shareholders prefer managers to be policed by the potential takeover threat and to not be insulated by law. Indeed, much research has shown that takeovers often benefit target shareholders (and punish bad managers). Thus, this result can be seen to reflect evidence of a key area in which there is a divergence of interests between shareholders and managers, where it takes sophisticated shareholders, with a large enough stake in the firm, to enforce the shareholder interests against those of managers. However, this raises the question of why previous findings have found governance to especially matter in firms with a larger fraction of institutional shareholders (see for example Cremers and Nair 2005). If indeed these firms can have an impact on the governance choices of the firms they hold, or on firm decisions more broadly, why would the existence of internal governance mechanism be so important?<sup>39</sup>

Interestingly, institutional investors express an additional, particularly large, negative preference for the mandatory index. This can be explained in that when shareholders have more power they do not need, nor desire, a rigid structure constraining their choice of mechanisms. This would imply that institutional shareholders still require a takeover friendly legislative environment, but do not desire restrictive laws in other areas<sup>40</sup>.

Taken as a whole, it seems that while institutional shareholders have a significant influence on the firm, they do not simply echo a collective "shareholder wealth increasing" interest, and are not a perfect substitute for governance mechanisms. There may be a non-monotonicity in the effect of institutional shareholders on firm value, where when institutional shareholders gain too much of the firm's share their objectives may change and they may have a detrimental effect on firm decisions. We must thus also seriously consider the potential for agency problems between the more concentrated and powerful shareholders and the more dispersed less informed shareholders (see for example Nagar et al 2005). Thus, for example the more powerful contingencies may not like the mandated cumulative voting mechanisms which can grant dispersed shareholders more of a say in the firm. More broadly, if indeed the current trend continues and institutional shareholders become increasing powerful and dominant in the public exchanges, we must consider the complex effects their presence has on firms and firm objectives, both at the firm level - in the formulation of firm strategy - and in the design of regulatory policy.

Finally, these investors seem to prefer well functioning courts, when measured at the trial level. This suggests, that institutional shareholders prefer to be in better policed environments, when measured at the trial level. In contrast, I find that, at the appellate level, these investors

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<sup>39</sup>We may also wonder why it is chiefly in firms held by public pension funds, a measure not found to be particularly important here.

<sup>40</sup>It is also possible that sophisticated shareholders may feel they have an advantage in jurisdictions with MAND laws in that they can better police management (compared to competing firms with a more dispersed ownership structure). However, this result may suggest a potential caveat in including the merger voting supermajority in the MAND grouping (based on Kahan 2006). This requirement may indeed be more relevant to the antitakeover group and this may explain some of the size of this coefficient.

exhibit an even a stronger (than mean) negative preference for the key court characteristic. This result suggests a congruence in preferences there. In future work I plan to examine if indeed this can be reconciled with an aim to deter value reducing external litigation and to facilitate the deterrence ensuing from the potential to take management to court. This finding implies however that the choice of incorporation jurisdiction is indeed sensitive to internalizing the differential effects of judicial jurisdictions facing different burdens.

### 5.1.3 Industry Concentration

Here too, I experimented with several measures. I found the results using 3 and 4 digit SIC codes to be similar<sup>41</sup>. Following Giroud and Mueller (2008) I use the 3 digit measure for the results presented below<sup>42</sup>. I find that industry concentration particularly matters regarding the MAND index. I do not find evidence of firms "surrendering" their takeover protections when operating in concentrated industries. Firms with market power seem to behave similarly to the "average" firm regarding antitakeover provisions. Firms in more concentrated industries have a strong positive preference for these rules. However, firms in concentrated industries are not influenced by the MAND laws when making their incorporation choices. Their preference for the MAND laws is positive and strong when compared to the "average" firm, and the overall effect washes out. This may reflect more of an awareness of shareholders (and an incentive to act on it) of the need to curb managerial behavior when the market disciplining forces are absent. However, when taken together with the mean preferences, we may interpret this as *managers* being less constrained in industries with less product market competition and thus having the freedom to choose their incorporation jurisdiction irrespective of these laws (compare Cũnat and Guadalupe, 2005). I believe this finding, as well as its interaction with the findings in the asset pricing literature mentioned, does indeed merit further inquiry.

### 5.1.4 Financial Profile

The main variables explored here are the age of the firm (since its foundation), and the time since its original IPO. Table 3A shows that both the firms' age since its founding, as well as the time since its original IPO both have a similar small but statistically significant influence on firm preferences over laws. Older firms have an additional positive preference for the ATS index, although the results are much stronger when measuring age since IPO. These firms are also more comfortable with the MAND laws. This could reflect a congealment around these internal practices. In other words, the older and more established firms, may not require the same degree of flexibility in their governance. This, of course, could reflect both a vintage effect - in that the newer firms are different and desire or require more flexibility, and also a life cycle explanation, whereby as the firm matures, its needs will change and it will move to another jurisdiction. My

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<sup>41</sup>However, there were differences when using the broad 2 digit measure.

<sup>42</sup>I also drop observations for which the industry concentration is above 97.5%, as they likely reflect industries which are too narrowly defined.

data on both the date of the firm's founding as well as on the firms' original IPO comes from both compustat as well as from the SDC data. When looking at the movements of firms in my data I find that indeed a significant share are by firms that underwent an IPO since 1980. This is thus some suggestive evidence that there is some life cycle behavior in incorporation choices.

Indeed, when looking at the trends amongst IPO firms, it is clear that there is a strong tendency towards Delaware incorporation, even as its shares are in decline. My anecdotal evidence, from discussions with managers in the venture capital industry and in some of the data collection agencies mentioned, suggests that indeed Delaware incorporation (a jurisdiction with a MAND value of 0) has become a default for many firms when initially incorporating<sup>43</sup>.

When looking specifically at the younger firms which underwent an original IPO after 1980, I find that whether or not the firm was venture capital financed significantly influences its preferences. Other variables explored, such as the IPO financing, and the share of insiders before and after IPO did not seem to matter. The results regarding venture backed firms echo those of institutional shareholders (although are of a smaller magnitude). This is unsurprising in that venture capital investors often carry a significant stake in the firm, and similarly possess the experience and sophistication surmised to influence the preferences of institutional investors above. It can thus be seen as further evidence supporting the potential of a formal and real authority divide in the firm decision making process. However, it is clear that there is much diversity in the objectives of the various venture capital investment policies, and thus the effect captured is likely an average effect from amongst significantly varying venture capital effects<sup>44</sup>.

### 5.1.5 Other Firm Heterogeneity

Neither of the two main director measures considered - the total number of directors and the percent of independent directors - are significant. The one exception is the interaction of the total number of directors with the MAND legal index, which is marginally significant. However, the paucity of data, once including these measures, changes the estimates significantly, and significance is lost even for the mean  $\beta$  on the MAND index itself. Thus, these results should be not be taken as conclusive evidence of director composition not mattering. I used these two measures following the previous literature (see for example Masulis et al (2007)). However, similarly, I did not find any of the other measures mentioned above to be significant in the incorporation decision<sup>45</sup>.

In addition, I experimented with two measures of compliance with the Sarbanes Oxley legislation (compare Chhaochharia and Grinstein 2007). The first, is a compliance score, tracking compliance with the CEO and CFO certification of published financials, loans compliance, designation of a financial expert on the audit committee, compliance with the standards for overall director independence, and compliance with the standards of committee independence. The

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<sup>43</sup>This, however, is consistent with both a vintage and life cycle explanation, since all it requires is for firms to initially prefer low MAND jurisdictions.

<sup>44</sup>The significance level of the venture capital measure is lower as well, likely a cause of the dispersion in funds.

<sup>45</sup>Given these findings I did not proceed to treat concerns of endogeneity in these measures.

second refers specifically to the compliance with the requirement to eliminate loans to directors and executives. While this data is available for the year 2003 I tracked the firms for which it was available in the years before and the years after, experimenting with different time windows. Once again, these were not significant in the incorporation choice, but significantly restrict the sample size.

### 5.1.6 Unobserved heterogeneity

As can be seen, the standard deviation is significant only for the MAND index (and not for ATS or the legal index)<sup>46</sup>. As mentioned above, identification comes from firms switching and from the difference in the choice sets of structurally identical firms. The magnitude of the MAND  $\sigma$  is particularly large thus suggesting that  $100 * (1 - \Phi(\frac{-\beta_k}{\sigma_k})) = \sim 30\%$  of the firms have a positive valuation for the index. The ATS unobserved heterogeneity suggests that a tiny fraction of firms have a negative preference for the ATS laws. This suggests that controlling for the unobserved heterogeneity is important, but primarily for the MAND measure, given the large amount of observed firm structure heterogeneity.

Furthermore, note the importance of the unobserved heterogeneity particularly concerning the MAND index. In Table 2A we see that when the  $\sigma$ s are dropped the mean  $\beta$  changes dramatically in magnitude and in fact is no longer significant. The interactions with the observed heterogeneity change significantly as well. These results strengthen the need to estimate a distribution around the random coefficients, even in the presence of much observed heterogeneity, not only to get realistic substitution patterns (as pointed out by the original BLP, 1995, models), but to get the point estimates right as well.

## 5.2 Endogeneity Corrections

### 5.2.1 Control Function

Table 2A gives the base specification with and without endogeneity corrections. Column 1 repeats the base specification from table 1A, column 2 has unobserved heterogeneity, while column 3 does not. Both columns 2 and 3 do not have endogeneity corrections. This table shows that despite the ability to capture much of the product specific unobservable with the product fixed effects, the controls are needed. Indeed, when added, the product specific residual functionals enter significantly for many products and their joint significance is easily established. This, in the context of the control function approach can be seen as a test confirming the importance of an endogeneity correction. The magnitude of the legal coefficients is influenced as well. The mean ATS  $\beta$  is about 60% its value without the corrections. The interaction with ownership (for which we instrumented) is also about half the absolute magnitude for the ATS index and about 66% the magnitude for the MAND index, reflecting the standard bias

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<sup>46</sup> Compare previous literature, such as Nevo 2001, where the results on the standard deviations are generally insignificant.

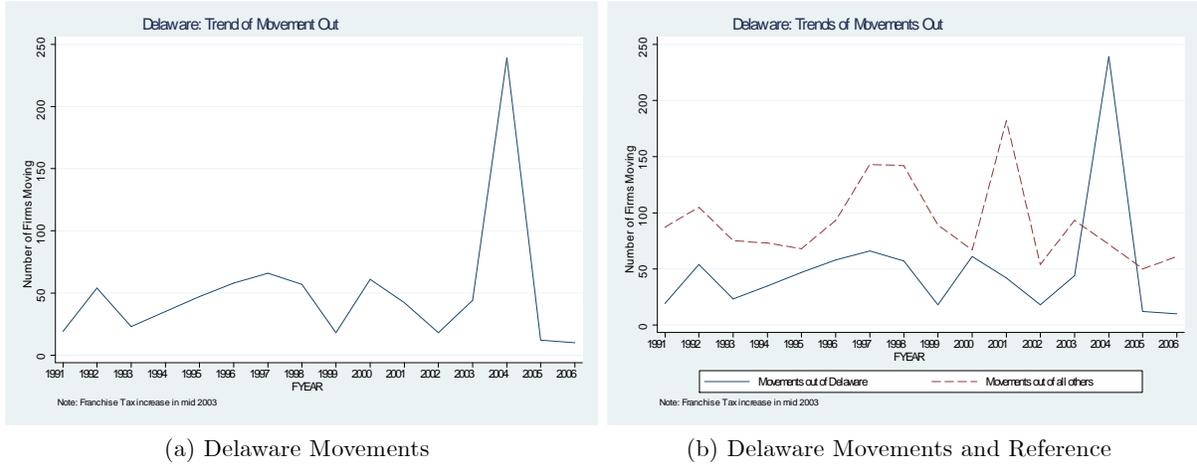


Figure 2: Flows Out of States.

towards zero. Interestingly, the interaction with the industry characteristics is influenced by these controls as well. Finally, there are some changes in the size of the product specific fixed effects, especially regarding those of DE and HOME which are both decreased. Note that these patterns do not apply to the other coefficients and thus this is not merely an issue of scale.

### 5.3 Robustness: Incorporation and Franchise Taxes: The Effects of the 2003 Tax Increases on Firm Incorporation Choice

This wide price variation is incorporated in my model above, where I find that indeed firm demand is downward sloping. However, it is interesting to "zone in" on recent tax increases in Delaware (where the tax was raised by 10%) and Nevada (where a franchise tax was introduced) and apply a standard difference in difference approach. This is useful for confirming the results regarding the high sensitivity to taxes, as well as for understanding the populations most affected by such changes.

Figure 3 displays the flows of public firms out of Delaware and Nevada since 1991 (my data start in 1990), plotted on their own and against the flows out of all other jurisdictions. These are firms that remain in the data (so they remain (active) public firms). As can be seen, there is a spike in 2004, which, given the tax increases in mid 2003, is the expected time frame for the response. It is interesting to note that the "movers" in both jurisdictions are generally smaller firms with a lower market value and net income, and in Delaware they were still paying close to the maximum tax rate<sup>47</sup> (in Nevada there was no tax prior to 2003).

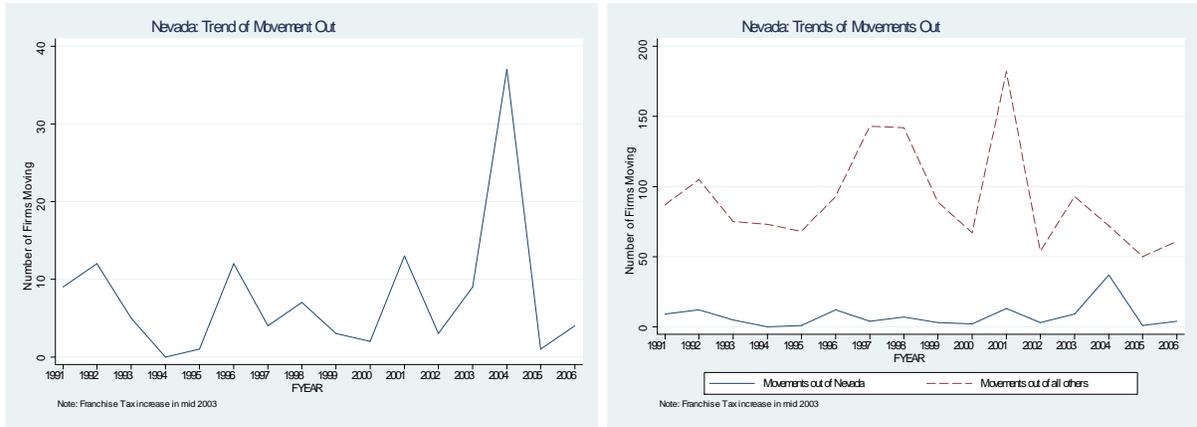
<sup>47</sup>Of course they may have been paying the maximum rate, since the tax based used (shares issued) is downward biased.

Table 2: Summary statistics (Non-Movers - Delaware)

Variable	Mean	Std. Dev.	N
Marketvalue	2382.289	12099.217	2671
Employees	7.104	37.753	3191
Net Income	72.832	652.752	3247
Franchise Tax Last Period	130066.355	49936.876	3342

Table 3: Summary statistics (Movers - Delaware)

Variable	Mean	Std. Dev.	N
Marketvalue	528.866	1471.514	111
Employees	1.622	3.992	167
Net Income	-13.418	266.814	171
Franchise Tax Last Period	110629.984	56584.013	172



(a) Nevada Movements

(b) Nevada Movements and Reference

Figure 3: Flows Out of States.

Table 4: Summary statistics (Non Movers - Nevada)

Variable	Mean	Std. Dev.	N
Marketvalue	638.002	1833.133	132
Employees	1.343	8.031	385
Net Income	2.766	89.335	478

Table 5: Summary statistics (Movers - Nevada)

Variable	Mean	Std. Dev.	N
Marketvalue	93.469	175.769	10
Employees	0.085	0.251	30
Net Income	-0.22	6.991	35

**Table 1**

	P(move)	P(move)	P(move)	P(move)
	(1)	(2)	(3)	(4)
Nevada-2004	-	.040*** (.010)	-	.024*** (.007)
Delaware-2004	-	.056*** (.012)	-	.039*** (.009)
NV-After	.010** (.004)	-	.007 (.004)	-
DE-After	.019*** (.006)	-	.018*** (.006)	-
Firms	All	All	"Foreign"	"Foreign"
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Observations	201,790	201,790	120,240	120,240

This is naturally confirmed in the difference in difference estimation in Table 1, where I look at the average marginal effects on the logit probability of moving out of the Nevada and Delaware jurisdictions respectively. Controls include all state fixed effects and year fixed effects, and I cluster by state. The difference in difference coefficients are the interactions. Columns 1 and 2 include all firms, while columns 3 and 4 look specifically at firms incorporated outside of their home state. Columns 1 and 3 difference the entire before and after periods, whereas columns 2 and 4 focus on the effect in 2004, the year immediately following the tax increase. All difference in difference coefficients are significant. However, it seems that most of the treatment effect (the effect of the taxes) is concentrated in 2004, the year immediately following the change. In most cases these firms go back home. Of the 239 firms that moved out of Delaware in 2004, 236 moved their incorporation back to their home state (2 moved to Maryland, and one to Nevada). Similarly, of the 37 firms that moved out of Nevada in 2004, 31 moved back to their home state as well, thus reinforcing the notion of home incorporation being a default for firms. Note that the other changes in Delaware's corporate law in 2003<sup>48</sup> were not, to the best of my knowledge, fraught with controversy. Finally, looking, in figure 5, at the aggregate share of Delaware's corporate license revenues in fiscal years ending in June of 1993 – 2007 shows the declining revenues that increased only temporarily in 2003 (or the fiscal year ending in June of 2004), only to decline with the massive exodus of firms.

<sup>48</sup>These were the limited expansion of the court of chancery's matter of jurisdiction and jurisdiction over executive officers, and the resolution of the ambiguity regarding shareholder and director rights to inspect the corporate books and records. See <http://corp.delaware.gov/2003amends.shtml>, visited 7/25/2008.

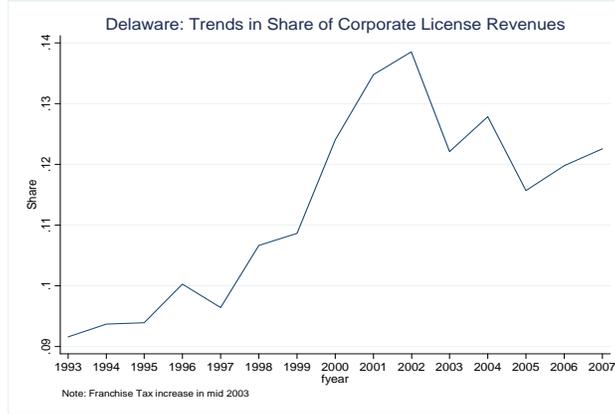


Figure 4: Trends in Share of Delaware’s Corporate License Revenues.

## 6 Counterfactual Policies

As mentioned, the advantage of specifying and estimating firm preferences in the manner proposed is that these preferences can be used to make out of sample prediction regarding different counterfactual policies. The advantage of having individual level data is that we can easily examine not only the impact on the aggregate shares, but also on the many degrees of firm structure. This can be seen as a partial equilibrium simulation in that we assume the distribution of firm structure remains constant and simulate the predicted choices firms (with this structure) will make under different policies. We can examine the differential behavior of firms with different firm structure heterogeneity. However, a "general equilibrium" variant would also require a model for how the specific policy change impacts firm structure. Thus, for example, if indeed sophisticated shareholders are selecting firms partially due to the firms’ choice of laws, a simulation of the effect of centralizing some of the governance legislation will then change the distribution of ownership across firms. This will change the structure of the counterfactual market even if we assume that the preferences remain as we estimated them. Similarly, a radical change in the market may change the preferences captured (but not decomposed) by the fixed effects.

In what follows I simulate the effect of a simple counterfactual policy: the effect of eliminating the ATS statutes (setting ATS to zero for all firms) and imposing all of the MAND laws (setting MAND to 4) for all firms. I look at the year 2006 and compare the predicted probabilities produced, given the 2006 data, with those under the uniform legal policy described. I measure the "average policy effect", the difference in the expected probability of choosing a particular alternative before and after the policy change, thus explaining the change in the average choice, accounting for endogeneity.

As expected, there are significant changes in firm shares. Most notably, the share of firms predicted to be incorporating at home decreases by 8%, as does the share of firms in Nevada (down 58%), and Maryland (down 57%), while the share of firms incorporating in California

increases by 120%. This suggests that California is losing many firms due to its lack of takeover legislation and that part of the reason firms stay at home is the more convenient laws. Maryland and Nevada are capturing market share due to their "manager friendly" laws. Delaware, on the other hand, increases its share by 8%. To a degree, this dispels the notion, quoted above, that Delaware is attracting firms due to its "loose laws". In fact Delaware has few takeover laws and when the divergence in laws is made to disappear it does better. Once again, this is but one simple counterfactual exercise. .

## 7 Summary, Discussion, and Future Work

This paper exploited the choice that the American legal structure offers states and firms to recover the differing firm preferences for the characteristics of the incorporation bundle. We found that there is significant lethargy in state activity. However, given the "home bias" or the preference firms have for remaining incorporated in their home state, there is still wide variation in the incorporation choice. We then addressed the issue of what matters to firms in their choice of governance regime, in the choice of incorporation. As discussed above, the choice offered by the US regulatory structure allows for the recovery of much information embedded in the preferences revealed by firms:

Beginning with the taxes, I showed that, unsurprisingly, there is no evidence that state corporate income taxes, which generally are not directly related to incorporation, play a role in incorporation choices. This alleviates concerns that the large suspected abuse and manipulation of the differing state tax rules extend to the incorporation freedoms. Moving to incorporation taxes I found, using both reduced form evidence from specific tax changes and in the aggregate model, that at least a subset of firms are very responsive to taxes. This may serve as an explanation for the fact that incorporation taxes are so low. However, when viewing taxes as a substitute for governance laws, a simple calculation has firms valuing governance laws at several million dollars, a miniscule amount given the size of the public firms analyzed. This suggests that for some firms the laws do not matter all that much. Note that this may be important in the overall state calculus given the large number of (smaller) private firms, which may be responsive in a manner similar to the smaller public firms. However, clearly, for larger firms, this elasticity of willingness to pay taxes-to governance, is much higher. Furthermore, the large response to tax changes may reflect some gaming behavior between firms and states as a deterrent for future tax initiatives. Finally, it is clear that while taxes are a direct (measurable) price in that the incorporation (or reincorporation) choice has direct tax implications, the multitude of effects the components of the incorporation package have on the various firm constituencies are likely to be significantly larger. In other words, the coefficient which is an average across firms comprising of various types of variation in the data cannot explain the full importance and interaction of the taxes with the specific firm characteristics. Laws may (differentially) impact the market value of different firms (particularly those that do *not* move) and this may serve as a more

powerful incentive in the choice of incorporation. However, a different model is needed in order to isolate and relate the impact of the various laws and incorporation bundle characteristics on the heterogenous firm values, and I leave this for future research.

I then moved on to the core of the paper - governance legislation. I showed that the preference structure for governance laws is complex, and, unsurprisingly, very much related to the internal and external characterization of the firm. The average preferences of the firm can often be seen to reflect the (narrow) interests of management: On average, firms dislike antitakeover laws and mandatory laws restricting the flexibility to grant managers more power and to limit their liability. Similarly, there is a marginally significant distaste for restrictions on payouts to shareholders. Thus, there are indeed clear patterns in the collective preferences of firms. However, these preferences are not uniform. When institutional shareholders as well as venture capital - both of which can be seen as sophisticated shareholders - have significant stakes in the firm, they express a clear distaste for antitakeover laws. This may reflect the findings that takeovers often benefit shareholders and punish inefficient management. It may also reflect the prevailing view (the testing of which is beyond the scope of this paper) that these laws are shareholder wealth reducing<sup>49</sup>. Firms with more market power are similar to the average firm in their preferences for antitakeover litigation, however, they have a different intensity of preferences for mandatory laws restricting managerial power. This suggests some specificity in the trade-off between product market competition and corporate governance regulation in law. I did not find any of the director characteristics with which I experimented to have power in explaining the choice of the incorporation package. The age of the firm, both since its founding and since its IPO, affects the intensity of preferences as well. This can be seen as evidence of a "life cycle" development of firm preferences, or of a recent shift in the preferences of younger firms.

In addition to the analysis of the observed heterogeneity, this paper shows that accounting for unobserved heterogeneity is important as well. I find, particularly concerning the mandatory laws analyzed, that there is still much residual variance in firm preferences, the omission of which would obscure the findings. This further confirms the importance of the methodological approach. Furthermore, this paper shows and compares several endogeneity corrections for the selection of firms by institutional shareholders and finds that the omission of these controls significantly biases the findings towards zero. Indeed, the analysis of observed and unobserved firm heterogeneity makes a more general point regarding the need to view firms as a sum of their inner components, both as a technical manner - to disentangle the conflicting effects - as well as a necessary step to obtain a more complete view of "firm" choice.

I then moved on to the other pieces of the incorporation package. I find that firms generally, and institutional shareholders increasingly, dislike efficient courts, in that they prefer to be under

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<sup>49</sup>This view is the result of many event studies, many of which were conducted in the 80's (see for example Bhagat and Romano, 2002). From a theoretical point of view, even if antitakeover laws make takeovers more difficult, they may increase the premiums to shareholders when takeovers are successful and have a positive effect overall.

the jurisdiction of court systems which have accumulated a large number of cases from previous years, which, consequently, can be expected to perform more slowly. Institutional shareholders seem to prefer well functioning courts, at least at the trial level, once again highlighting the divide in preferences<sup>50</sup>.

To complete the analysis of the incorporation bundle, I find, as expected, a significant distaste for the geographical distance. This suggests the potential for regional incorporation "hot spots" and may explain some of the reason for Nevada emerging as a "Delaware of the West".

Taking a step back, the more general point made is that, as shown in the counterfactual simulations and as suggested by my findings, policy towards firms does not and will not have a uniform impact. Despite the lethargy in state legislation, there is considerable variance in the incorporation implications across states. However, sorting does and will occur when firms are given the freedom to choose. This sorting is likely to be largely related to the effective authority within the firm, and not solely to the differential manner in which heterogeneous firms can increase their value. In other words, the optimistic view, which would hope for firms to spatially match their needs to different niches provided by different states, presupposes a firm collective that maximizes a shared objective, a view severely challenged by the findings in this paper. Reform of firm choice can be made in one of two ways. The first is to increase the freedom afforded to firms by not restricting them to any bundled incorporation package, but rather allowing them to piece their corporate governance regime together on their own. This can be done by separating the choice of judicial forum from the incorporation decision, thus allowing firms, for example, to adjudicate in Delaware, using California law, or even by slicing the choice of law more finely to allow firms to choose to be subject to different jurisdictions for different areas of corporate governance law. The second is of course to reduce the freedom given to firms either by linking incorporation to the physical location, or, more easily, by imposing uniform federal regulation. The findings in this paper suggest that more choice would not necessarily seep down to firms with weaker shareholders and thus would miss many of the desired beneficiaries. Furthermore, this would require an accounting for the resulting incentives states have to develop their regimes, including a potentially complicated allocation and apportionment of the incorporation taxes. However, centralizing corporate governance law would eliminate choice from all firms, a result that may indeed be too dramatic and require too much foresight from the policy maker, which would be required to effectively consider the differing needs of the different firms. Furthermore, it is clear that the current makeup of firm heterogeneity is merely a snapshot of an ongoing process. Firms, both public and private, are in a state of flux as the composition of ownership and management and the structure of industries are rapidly changing. The current economic crisis is contributing to this restructuring as well, as crises often do. Thus, policy must also be sensitive to the expected future changes, both those resulting directly from the impending regulations as well as those naturally arising from the changing economic

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<sup>50</sup>As mentioned the preferences of institutional shareholders for delay at the appellate level are reversed, albeit with marginal significance levels. The average preference is for "slower" courts at both levels.

conditions. Firms with a high concentration of sophisticated shareholders should be closely monitored as they shift the location of the agency issues to the potential majority-minority shareholder divide. Furthermore, as mentioned, the counterfactual analysis may be more a summary of the current dynamics than a reliable predictor of what will happen with policy reform. The measures of laws may be, to some degree, capturing the sentiment in the various jurisdictions and not the laws per se. Sentiment and forward looking expectations undoubtedly play a large role and are difficult to account for when extrapolating the results to inform future proposed policies.

It seems obvious that the taxation of incorporation should be revisited. First, facilitating the recovery of more tax revenue may serve as an incentive for states to more actively consider the design of their systems. Second, the use of taxes as a price may even be a potential means to screen firms based on their differential needs. A restructuring of the current base (likely an antiquated historical artifact) to make it more salient, to relate it to the agency issues within the firm, and to prevent an easy escape from taxes with a reincorporation move, would then be required.

Finally, there is indeed a conceptual link between what is seen to matter for the "upper level" of governance - the choice of litigation regime - and the overall preferences of firms as reflected in their charters. Thus, the effects of being in jurisdictions with different corporate governance laws can be taken directly to stock market trading strategies, either generally (as done in previous versions of this paper<sup>51</sup>), or more narrowly, by zeroing in on particular firm cohorts. However, the findings in the incorporation analysis should be seen as complementary to the findings on the general count of governance provisions in firm charters and to impact the interpretation of these latter results. Thus, for example, we may question the finding that governance matters more to firms with a high level of institutional shareholders, if indeed these are firms where shareholders have more of a say and can directly monitor management, as suggested here. Similarly, we may question the intensity of any trade-off between market competition and governance, given the lack of a significant shift in preferences for the ATS laws, and a modest shift for the MAND laws. More broadly, any claim regarding the effects of the passing of governance laws on firms (see for example Giroud and Mueller 2008) must include an accounting for the collective firm choice to remain under the jurisdiction of such laws and not to reincorporate. A natural development in the corporate governance literature will be to more carefully analyze the components of the broad indices used (the GIM index being an obvious example), their relationship to the legal environment, and their differential impact on different firms. This extension of the study of the link between governance and performance should also be made, of course, regarding other real measures of performance and firm choice, such as the choice of investments and capital structure and firm profitability.

This paper can be seen as a preliminary step towards the consideration of the manner in

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<sup>51</sup>In previous versions of this paper I examine trading strategies based on the legal indices and find profitable trading strategies from the year 2000 onward, where firms in jurisdictions with more takeover laws perform better, as do firms with more mandatory laws. These results are available by request and will be posted on my website.

which federal regulation should be made. In this vein, the extensions to this paper are straightforward. First, more work is needed in modeling the political economy of the supply side. Much progress can be made in understanding the current distribution of incorporation bundle characteristics, as well as in designing policy that can motivate state innovation, if indeed the states' objective function can be reasonably modeled. Second, as noted throughout the paper, the large dimensionality of the data I collect in terms of the many attributes of firm structure allows for a very large number of specifications testing a broad range of issues regarding the behavior of firms differentiated across these dimensions. An exhaustive examination of all the degrees of observed heterogeneity in my data is too broad for the scope of this single paper. Indeed, as mentioned, my results suggest that there are more dimensions of firm heterogeneity that have significant explanatory power. Thus, more aspects of the data can be examined and the data can be augmented to specifically analyze other dimensions of heterogeneity. Similarly, while I focus on a broad range of legislation, there are still rules that I have not considered<sup>52</sup>. Indeed, as the new policy proposals of the incoming administration crystallize, the methodology presented here and the counterfactual simulations can be tailored in furtherance of their analysis. Furthermore, as noted throughout, while the results of this paper are largely based on an aggregate analysis, more "micro" studies (similar to the one done above regarding the legislative changes in 2003 can be done).

As a next step, private firms should be analyzed. These firms vary to a considerable degree both during their "private" life and in their decision to go public. The collection of a more representative panel of private firms allows for a closer look at the timing of the IPO decision and its response to regulation of trading exchanges (a complementary form of regulation to that studied in this paper). The structure of such an analysis parallels the structure used here. However, private firms face different governance and control issues and have different agency problems. Thus, we should expect to see different preferences exhibited between public and private firms and in private firms amongst themselves and this may serve as a test for the model presented here for incorporation motives. Finally, while my focus has been primarily on the US, this market structure of competition over firms and firm choice is becoming increasingly relevant in Europe as well. The research outlined above can be nicely paralleled in the study of the evolving European markets and ultimately in the global market as well.

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<sup>52</sup>For example, Maryland has become increasingly popular amongst REITs and so it would be interesting to see whether there may be judicial and legislative developments to impact this.

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**Table 1A**

Variable	Means ( $\beta$ 's)	Standard Deviations ( $\sigma$ 's)	Interactions with Firm Structure	
			Ownership	Industry Concentration
<b>Laws</b>				
ATS	.314*** (.096)	.001 (.002)	-.478*** (.164)	.049 (.042)
MAND	-.687*** (.208)	1.31*** (.115)	-1.19*** (.406)	.493*** (.102)
Payout Restrictions	.037 (.277)	-	-	-
Ultra Vires	-.353 (.292)	-	-	-
<b>Courts</b>				
Clearance Ratio	-.75** (.364)	.066 (.045)	1.43** (.712)	.711 (.422)
<b>Taxes</b>				
Incorp. Taxes	-.002*** (.0004)	-	-	-
SCIT	-3.28 (4.35)	-	-	-
Distance	-.272*** (.083)	-	-	-
<b>Product Fixed Effects</b>				
HOME	4.37*** (.232)		FL	-1.21 (.201)
DE	5.49*** (.340)		CO	-.16 (.313)
NV	.11 (.458)		MA	-.625*** (.209)
MD	-.017 (.287)		NY	-.035 (.435)
CA	-.413* (.358)		PA	.071 (.442)
WY	-1.75*** (.595)		-	-

ATS is an index of Antitakeover laws, MAND is an an index of mandatory laws, Payout Restriction indicates the minimum asset to liability ratio required to make a shareholder payout. Ultra Vires indicates whether ultra vires actions are recognized in the state. Clearance Ratio is the ratio of cases accumulated to cases disposed of in trial courts in the previous year. Incorp. Taxes are the total tax liability for the firm (incorporation and franchise taxes) as resulting from the choice of jurisdiction. SCIT is the state corporate income tax rate in the previous year. Distance is (in thousands of miles) from the home state to the incorporation state. Ownership is measure as the percent of shares held by institutions with at least a 1% block in the firm. Industry concentration is calculated based on the herfindahl index using the 3 digit sic code. This specification uses 780,824 observations. Endogeneity is controlled for using the control function approach described in the text. Standard errors are clustered at the home state level. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels respectively.

**Table 2A**

<b>Variable</b>	(Endogeneity Correction)	(2)	(3)
HOME	4.37*** (.233)	3.68*** (.248)	3.49*** (.25)
DE	5.49*** (.34)	4.54*** (.305)	4.32*** (.293)
NV	.11 (.458)	.48 (.438)	.496 (.467)
MD	-.016 (.287)	.920** (.379)	.699* (.409)
<b>ATS</b>			
Mean	.314*** (.97)	.194** (.078)	.181** (.075)
Ownership	-.478*** (.712)	-.242*** (.078)	-.21*** (.074)
Industry Concentration	.05 (.042)	.210*** (.068)	.202*** (.061)
$\sigma$	.002 (.002)	0.0007 (.001)	-
<b>MAND</b>			
Mean	-.688*** (.208)	-.639*** (.214)	-.19 (.127)
Ownership	-1.19*** (.406)	-.8*** (.266)	-.67*** (.174)
Industry. Concentration	.493*** (.103)	.305*** (.111)	.210*** (.071)
$\sigma$	1.31*** (.115)	1.14*** (0.174)	-
<b>Taxes</b>			
Incorp. Tax	-.002*** (.0004)	-.002*** (.0003)	-.002*** (.0003)
SCIT	-3.28 (4.350)	-2.07 (4.36)	-1.80 (4.38)
Distance	-.272*** (.084)	-.250*** (.070)	-.224*** (.074)
Payout Restrictions	.037 (.277)	.015 (.223)	-.058 (.200)
Ultra Vires	-.353 (.292)	-.268 (.257)	-.173 (.275)

Variable descriptions are the same as under table 1A, and the same variables are used. Not all variables are reported for ease of exposition. Here, the first column has the control function endogeneity correction, while the second and third do not. In addition, column three does not account for unobserved heterogeneity in the random coefficient design.

**Table 3A**

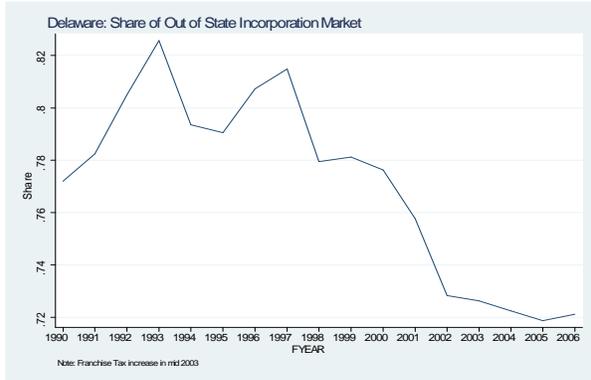
Variable	(1)	(2)
<b>ATS</b>		
Mean	.446*** (.157)	.368** (.159)
Ownership	-.752*** (.218)	-.679*** (.225)
Industry Concent.	.098 (.041)	.039* (.063)
Venture Backed	-.035 (.026)	-.052** (.026)
Age (since IPO)	.011*** (.004)	-
Age (since founded)	-	.004*** (.001)
$\sigma$	.009 (.007)	.003 (.003)
<b>MAND</b>		
Mean	-.861** (.419)	-.718* (.410)
Ownership	-1.58*** (.450)	-1.58*** (.492)
Industry Concent.	.710*** (.140)	.637*** (.242)
Venture Backed	-.157*** (.050)	-.123*** (.047)
Age (since IPO)	.041*** (.001)	-
Age (since founded)	-	.011*** (.003)
$\sigma$	1.49*** (.216)	1.37*** (.173)
<b>Clearance Ratio</b>		
Mean	-1.35** (.53)	-1.29** (.525)
$\sigma$	0.012 (.07)	0.048 (.059)
<b>Taxes</b>		
Incorporation	-.002* (.0008)	-.002** (.0009)
SCIT	-6.32 (6.73)	-3.87 (6.15)
Observations	298,473	220,930

Variable descriptions are the same as under table 1A. In addition, Venture Backed is a dummy variable indicating whether the firm had an initial IPO backed by venture capital, and two alternative age variables are added. These additional variables are cumulative to all variables in the model. Endogeneity corrections are using the control function approach as explained in the text.

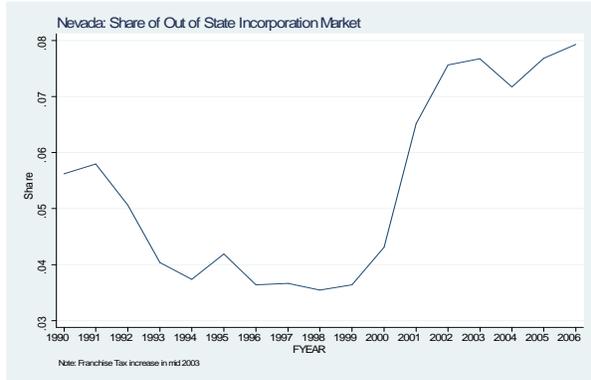
## **8 Additional Figures**

**8.1 Figure 5: Trends in shares of Incorporations**

**8.2 Figure 6: Trends in share of IPOs**



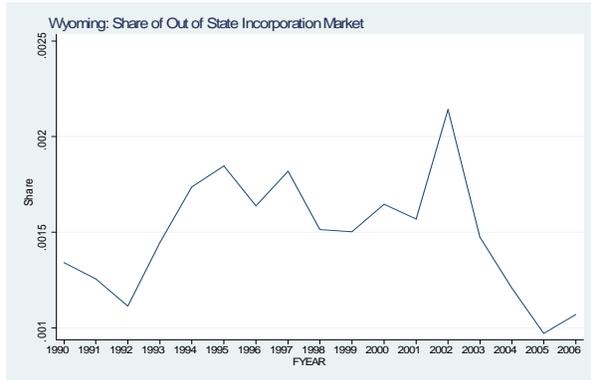
(a) Delaware Share: Out of State Incorporations



(b) Nevada Share: Out of State Incorporations



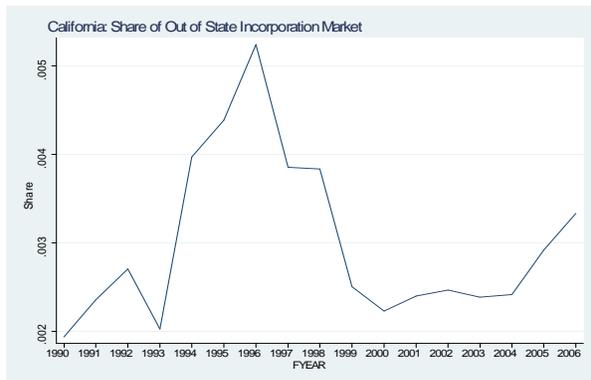
(c) Maryland Share: Out of State Incorporations



(d) Wyoming Share: Out of State Incorporations

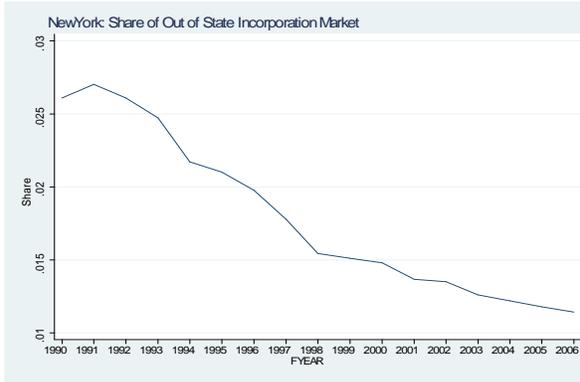


(e) Pennsylvania Share: Out of State Incorporations

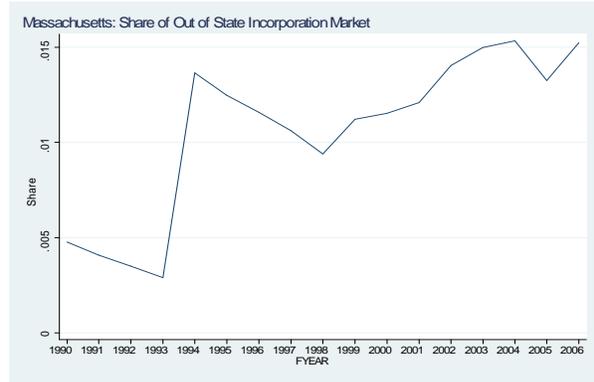


(f) California Share: Out of State Incorporations

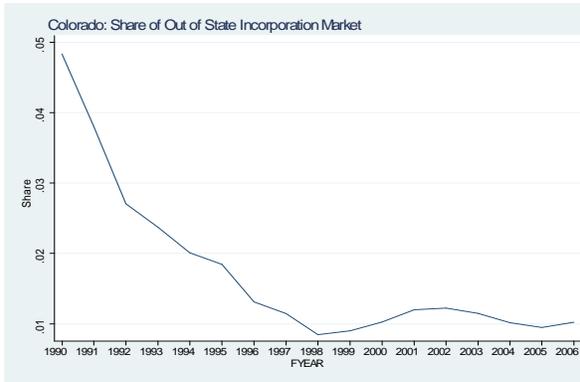
Figure 5: Trends in Shares of Out of State Incorporations



(g) New York Share: Out of State Incorporations



(h) Massachusetts Share: Out of State Incorporations

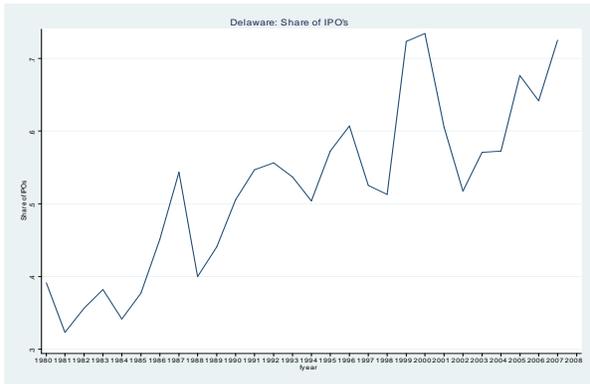


(i) Colorado Share: Out of State Incorporations

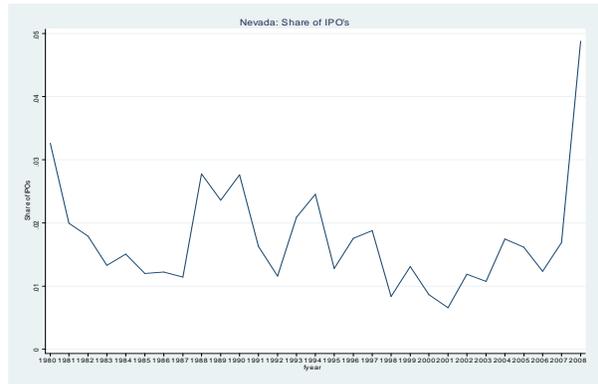


(j) Florida Share: Out of State Incorporations

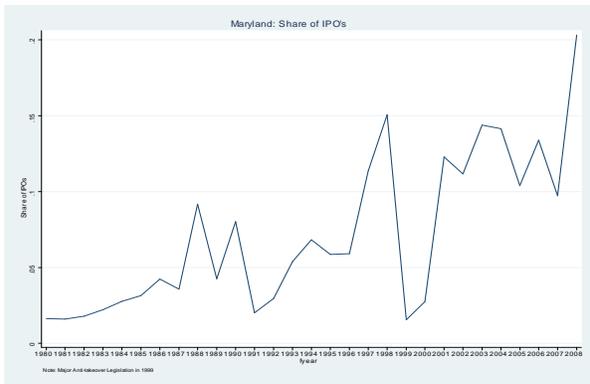
Figure 5: Trends in Shares of Out of State Incorporations



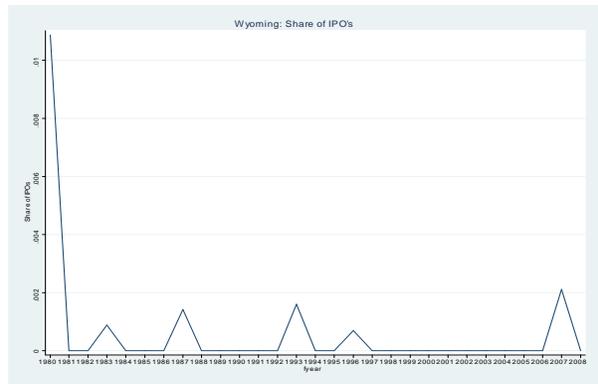
(a) Delaware Share: IPOs



(b) Nevada Share: IPOs

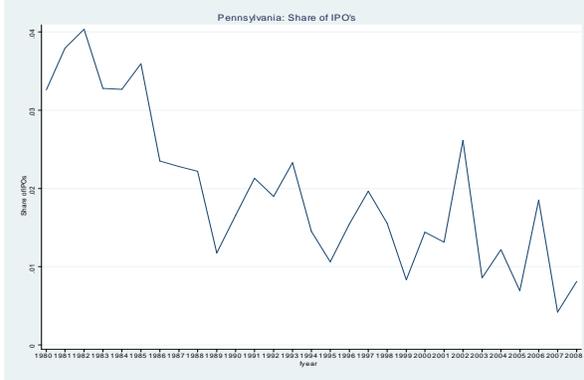


(c) Maryland Share: IPOs

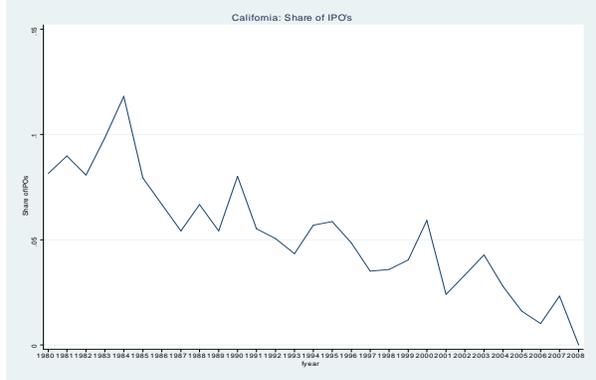


(d) Wyoming Share: IPOs

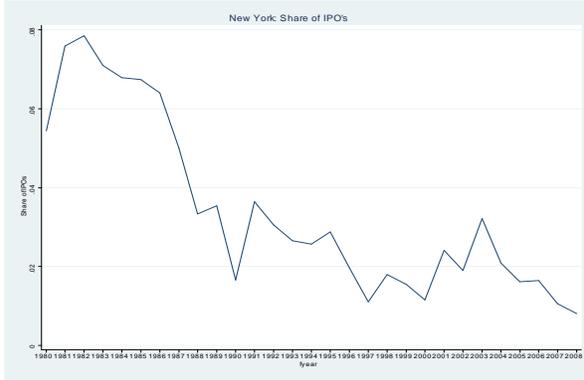
Figure 6: Trends in Shares of IPOs



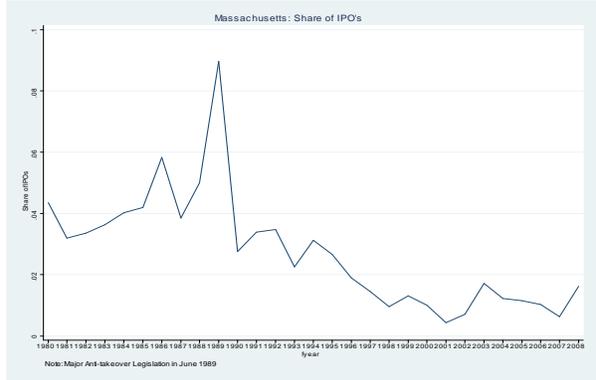
(e) Pennsylvania Share: IPOs



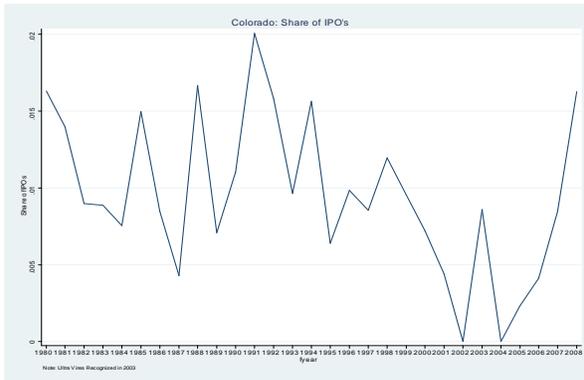
(f) California Share: IPOs



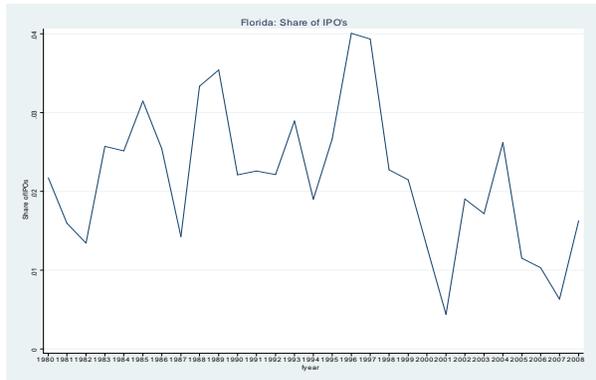
(g) New York Share: IPOs



(h) Massachusetts Share: IPOs



(i) Colorado Share: IPOs



(j) Florida Share: IPOs

Figure 6: Trends in Shares of IPOs

## 9 Appendix A1 - Description of State Laws

When possible I quote the definition in GIM. In these cases, the definition will be followed by "(GIM)". Otherwise, these definitions will be culled from a variety of sources including sharkrepellent (which is current and thus from which I also can track any changes in state laws since GIM), the ISS Proxy Voting Manual, and the State Takeover Law Handbook. I separate the laws into those used in the specifications above and other explored, but found not to be significant or to not have sufficient cross section variation.

### 9.1 ATS LAWS

#### 9.1.1 Control Share Acquisition Provisions

These are provisions that "require a majority of disinterested shareholders to vote on whether a newly qualifying large shareholder has voting rights. They were in place in 25 states by September 1990", where 4 states added their provision in 1990 and one more added its provision 1991." (GIM). In Arizona, Florida, Idaho, North Carolina, South Carolina, Tennessee and Washington they apply to out of state corporations as well. It essentially requires that a bidder obtain shareholder votes or risk not being able to use the acquired stock to obtain control. This is one of the five provisions Bebchuk and Cohen (2003) see to be the central ones to incorporation choice. It is seen to be beneficial even by some apposed to ATS since it protects shareholders against coercive offers, without granting managers the ability to resist bids.

#### 9.1.2 Director Duties

These provisions also termed **Expanded Constituency Provisions**, "allow directors to consider constituencies other than shareholders when considering a merger. These constituencies may include, for example, employees, host communities, or suppliers. This provision provides boards of directors with a legal basis for rejecting a takeover that would have been beneficial to shareholders. Thirty-one states have Directors' Duties laws allowing similar expansions of constituencies, but in only two of these states (Indiana and Pennsylvania) are the laws explicit that the claims of shareholders should not be held above those of other stakeholders [Pinnell 2000]."

#### 9.1.3 Fair Price Provisions

"Fair-Price provisions limit the range of prices a bidder can pay in two-tier offers. They typically require a bidder to pay all shareholders the highest price paid to any shareholder during a specified period of time before the commencement of a tender offer, and do not apply if the deal is approved by the board of directors or a supermajority of the target's shareholders. The goal of this provision is to prevent pressure on the target's shareholders to tender their shares in the front end of a two-tiered tender offer, and they have the result of making such an acquisition

more expensive. Also, 25 states had Fair-Price laws in place in 1990 (with 3 of them passing their laws in 1990, MAC), and two more states passed such laws in 1991." (GIM). They limit the bargaining power of bidders in that the risk for shareholders not tendering in the first round, of obtaining a low price in the second round, is mitigated.

#### **9.1.4 Freeze Out Provisions**

Also termed **Business Combination Statutes**. These provisions impose "a moratorium on certain kinds of transactions (e.g., asset sales, mergers) between a large shareholder and the firm, unless the transaction is approved by the Board of Directors. Depending on the state, this moratorium ranges between two and five years after the shareholder's stake passes a pre-specified (minority) threshold." (GIM) In effect the laws limit the benefits of takeovers in that the synergies in the case of mergers or other restructuring cannot take place immediately.

#### **9.1.5 Poison Pill Endorsements**

This is a seal of approval given by the state for the use of poison pills (see their definition below). This in effect provides a layer of protection should the pills be challenged. The endorsement does vary by state in its degree. Thus, for example New York and North Carolina are clear that such plans are still subject to judicial review to ensure shareholder interests are considered and that the freedom to use these pills is not unlimited.

### **9.2 MAND LAWS**

#### **9.2.1 Cumulative Voting**

Six states have mandatory provisions requiring election by cumulative voting (see entry in appendix A2 below). Other states allow the firms to choose.

#### **9.2.2 Limits on Loans to Directors and Officers**

Most states permit loans to directors and officers, subject to self dealing constraints. Four states have special rules holding directors personally liable for the loans or have procedural requirements (such as shareholder approval). As mentioned, this is a particularly interesting provision, given that now, post Sarbanes-Oxley, there is a general prohibition on such loans.

#### **9.2.3 Restrictions on Limits to the Personal Liability of Directors**

Some systems permit firms to eliminate personal liability of directors for a breach of duty (see entry below). Six states do not permit this, or do so on grounds narrower than Delaware.

### **9.2.4 Merger Vote Majority Requirements**

Seven states require that mergers be approved by two-thirds of the shareholders, and do not permit the company to adopt a lower threshold. Other states require a regular or two-third majority but allow firms to vary the percentage in their certificate of incorporation. And indeed (Kahan 2006) finds most firms with the choice to, opt out.

### **9.3 Payout Restrictions**

We use Wald and Long's (2007) coding of the minimum asset to liability ratio required to make payout to shareholders (which clearly affects leverage decisions). These laws are very stable over our time period, but they document them having significant effects on manufacturing firms' location (and reincorporation) choices.

### **9.4 Ultra Vires Recognition**

These laws recognize actions taken by the firm (through its agents) as firm action, even when the actor overstepped the boundaries of their position in the firm charter. This imposes more responsibility on the firm over its actors. Most states have generally chosen to recognize such acts. Jurisdictions that do not, offer firms a limitation on the breadth of their liability.

### **9.5 Other Laws Tested but Not Used**

#### **9.5.1 Anti-Greenmail Restrictions/Profit Recapture**

These restrictions refer to "a transaction between a large shareholder and a company in which the shareholder agrees to sell his stock back to the company, usually at a premium, in exchange for the promise not to seek control of the company for a specified period of time. Antigreenmail provisions prevent such arrangements unless the same repurchase offer is made to all shareholders or approved by a shareholder vote. Such provisions are thought to discourage accumulation of large blocks of stock because one source of exit for the stake is closed, but the net effect on shareholder wealth is unclear [Shleifer and Vishny 1986; Eckbo 1990]. Five states have specific Antigreenmail laws, and two other states have "recapture of profits" laws, which enable firms to recapture raiders' profits earned in the secondary market. We consider recapture of profits laws to be a version of Antigreenmail laws (albeit a stronger one)... states with Antigreenmail laws tend to pass them in conjunction with laws more clearly designed to prevent takeovers [Pinnell 2000]. Since it seems likely that most firms and states perceive Antigreenmail as a takeover "defense," we treat Antigreenmail like the other defenses and code it as a decrease in shareholder rights." (GIM)

### **9.5.2 Compensation Restrictions**

These laws prohibit the establishment of irregular, compensation increases, during takeover contests, such as new golden parachutes (see below) provisions. However they are of limited efficacy since they generally do not apply to the period before the takeover contest (see Mallette and Spagnola, 1994).

### **9.5.3 Control Share Cash Out Provisions**

These provisions enable "shareholders to sell their stakes to a "controlling" shareholder at a price based on the highest price of recently acquired shares. This works something like fair-price provisions (see above) extended to non-takeover situations. These laws were in place in three states by 1990 with no additions during the decade" (GIM), (or thereafter). Naturally, they discourage takeovers in that they are potentially made more expensive with this option extended to shareholders.

### **9.5.4 Model Business Corporation Act (MBCA)**

This is a complete codex written by the American Bar Association. A number of states have adopted the MBCA and so there clearly are network benefits from sharing its laws. However, four of the five largest states and Delaware have not adopted it. There is also considerable variation in the time the MBCA was adopted (although largely before the 90's). It is therefore more a proxy for a form of legal network effects and less an indicator for having particular laws. Naturally, there are many alternatives to adopting the MBCA. Non-adopting states deviate from its provisions in a variety of ways. It is thus a difficult "law" to analyze.

### **9.5.5 Severance Pay and Labor Contract Provisions**

These provisions are used to by states to protect employees in the event of a takeover. Severance pay ensures severance to the employees, while the labor contract provisions requires that, post-takeover, no collective bargaining or employment contract be terminated without the explicit consent of all parties to the contract. Massachusetts and Rhode Island had both provisions, although the former has been invalidated by federal courts in that it is preempted by the Employee Retirement Income Security Act (ERISA). Pennsylvania still has both, while Delaware and Illinois only have the latter. (See *Simas v. Quaker Fabric Corp. of Fall River*, 6 F.3d 849 (1st Cir. 1993) and *United Paperworks International Union Local 1468, et al, v. Imperial Home Decor Group*, 1999 WL 1115761 (D.R.I. 1999). I thus counted all state with at least one of the two as having this type of protection.

## **10 Appendix A2 - Description of ByLaw Characteristics**

### **10.1 Blank Check Preferred Stock**

"Stock over which the board of directors has broad authority to determine voting, dividend, conversion, and other rights. While it can be used to enable a company to meet changing financial needs, its most important use is to implement poison pills or to prevent takeover by placing this stock with friendly investors. Because of this role, blank check preferred stock is a crucial part of a "delay" strategy. Companies that have this type of preferred stock but require shareholder approval before it can be used as a takeover defense are not coded as having this provision in our [the IRRC] data. This stock, when issued, gives directors the broad authority to establish voting, dividend, conversion and other rights. This flexibility is good for facilitating the adjustment to changing financial conditions. However it also grants the authority to issue stock necessary for the implementation of defenses, including anti-takeover defenses."(GIM)

### **10.2 Bylaw and Charter Amendment Limitations**

These limit "shareholders' ability to amend the governing documents of the corporation. This might take the form of a supermajority vote requirement for charter or bylaw amendments, total elimination of the ability of shareholders to amend the bylaws, or the ability of directors (beyond the provisions of state law) to amend the bylaws without shareholder approval." (GIM)

### **10.3 Classified Board**

"A Classified Board (or "staggered" board) is one in which the directors are placed into different classes and serve overlapping terms. Since only part of the board can be replaced each year, an outsider who gains control of a corporation may have to wait a few years before being able to gain control of the board. This slow replacement makes a classified board a crucial component of the Delay group of provisions, and one of the few provisions that clearly retains some deterrent value in modern takeover battles [Daines and Klausner 2001]."(GIM) This provision is mandatory in Massachusetts (unless opted out by the directors), as of 1990, and enabling in other states.

### **10.4 Common Stock Redemption Rights**

They are similar to poison pills in that they allow for the sale of stock back to the firm at a premium price, if another shareholder acquires a significant share of the stock through a tender offer not approved by the board of directors. This in effect threatens the dilution of the firm value by distributing the company's assets directly to the shareholders before control of the company is surrendered, and thus is another anti-takeover provision.

## **10.5 Compensation Plans With Changes in Control Provisions**

These provisions allow "participants in incentive bonus plans to cash out options or accelerate the payout of bonuses if there should be a change in control. The details may be a written part of the compensation agreement, or discretion may be given to the compensation committee." (GIM)

## **10.6 Cumulative Voting**

These provisions allow "a shareholder to allocate his total votes in any manner desired, where the total number of votes is the product of the number of shares owned and the number of directors to be elected. By allowing them to concentrate their votes, this practice helps minority shareholders to elect directors." (GIM) These are seen to increase shareholder rights. They grant the minority more power to be represented, in that they can focus on electing at least some of the directors. These provisions can also be made contingent on there being a substantial shareholder.

## **10.7 Director indemnification Contracts**

These are contracts between the company and particular officers and directors, using the bylaws, charter, or both, indemnifying them from certain legal expenses and judgments resulting from lawsuits pertaining to their conduct. Some firms have both "Indemnification" in their bylaws or charter and these additional indemnification "Contracts"... "The cost of such protection can be used as a market measure of the quality of corporate governance [Core 1997, 2000]." (GIM)

## **10.8 Dual Class Common Stock**

Dual Class Common Stock attaches more or less voting power to different shares. Thus allowing for a disproportionate amount of control to be put in the hands of those holding these preferred shares.

## **10.9 Golden Parachutes**

"Golden Parachutes are severance agreements that provide cash and non-cash compensation to senior executives upon an event such as termination, demotion, or resignation following a change in control. They do not require shareholder approval. While such payments would appear to deter takeovers by increasing their costs, one could argue that these parachutes also ease the passage of mergers through contractual compensation to the managers of the target company [Lambert and Larcker 1985]. While the net impact on managerial entrenchment and shareholder wealth is ambiguous, the more important effect is the clear decrease in shareholder rights. In this case, the "right" is the ability of a controlling shareholder to fire management without incurring an additional cost. Golden Parachutes are highly correlated with all the other takeover defenses."(GIM) GIM treat these as restrictions of shareholder rights.

## **10.10 Limitations on Director Liability**

"Limitations on director Liability are charter amendments that limit directors' personal liability to the extent allowed by state law. They often eliminate personal liability for breaches of the duty of care, but not for breaches of the duty of loyalty or for acts of intentional misconduct or knowing violation of the law."(GIM)

## **10.11 Pension Parachutes**

"Pension Parachutes prevent an acquirer from using surplus cash in the pension fund of the target to finance an acquisition. Surplus funds are required to remain the property of the pension fund and to be used for plan participants' benefits." (GIM)

## **10.12 Poison Pills**

"Poison Pills provide their holders with special rights in the case of a triggering event such as a hostile takeover bid. If a deal is approved by the board of directors, the poison pill can be revoked, but if the deal is not approved and the bidder proceeds, the pill is triggered. Typical poison pills give the holders of the target's stock, other than the bidder, the right to purchase stock in the target or the bidder's company at a steep discount, making the target unattractive or diluting the acquirer's voting power. Poison pills are a crucial component of the "delay" strategy at the core of modern defensive tactics."(GIM)

## **10.13 Secret Ballot**

"Under a Secret Ballot (also called confidential voting), either an independent third party or employees sworn to secrecy are used to count proxy votes, and the management usually agrees not to look at individual proxy cards. This can help eliminate potential conflicts of interest for fiduciaries voting shares on behalf of others, and can reduce pressure by management on shareholder-employees or shareholder-partners."(GIM) GIM see the inclusion of this provision in by-laws as increasing shareholder rights.

## **10.14 Severance Agreements**

"Executive Severance agreements assure high-level executives of their positions or some compensation and are not contingent upon a change in control (unlike Golden or Silver Parachutes)."(GIM)

## **10.15 Silver Parachutes**

"Silver Parachutes are similar to Golden Parachutes in that they provide severance payments upon a change in corporate control, but differ in that a large number of a firm's employees are eligible for these benefits."(GIM). These do not protect key decision makers in a merger, and

are thus potentially just an expression of the power of management. They are classified by GIM in the "Other" group rather than in the "Protection" group.

### **10.16 Special Meeting Limitations**

"Special Meeting limitations either increase the level of shareholder support required to call a special meeting beyond that specified by state law or eliminate the ability to call one entirely. Such provisions add extra time to proxy fights, since bidders must wait until the regularly scheduled annual meeting to replace board members or dismantle takeover defenses. This delay is especially potent when combined with limitations on actions by written consent."(GIM)

### **10.17 Supermajority Requirements for Merger Approvals**

"Supermajority requirements for approval of mergers are charter provisions that establish voting requirements for mergers or other business combinations that are higher than the threshold requirements of state law. They are typically 66.7, 75, or 85 percent, and often exceed attendance at the annual meeting."(GIM) Note that the state laws (see above) are not uniform on this issue. These provisions are similar to Control-Share Acquisition Laws defined above.

### **10.18 Unequal Voting Rights**

"Unequal Voting rights limit the voting rights of some shareholders and expand those of others. Under time-phased voting, shareholders who have held the stock for a given period of time are given more votes per share than recent purchasers. Another variety is the **substantial-shareholder provision**, which limits the voting power of shareholders who have exceeded a certain threshold of ownership." (GIM)

### **10.19 Written Consent Limitations**

"Limitations on action by Written Consent can take the form of the establishment of majority thresholds beyond the level of state law, the requirement of unanimous consent, or the elimination of the right to take action by written consent. Such requirements add extra time to many proxy fights, since bidders must wait until the regularly scheduled annual meeting to replace board members or dismantle takeover defenses. This delay is especially potent when combined with limitations for calling special meetings (see above)." (GIM)