Essays in Financial Regulation and Corporate Law

by

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In the first essay, we investigate which provisions, among a set of twenty-four governance provisions followed by the Investor Responsibility Research Center (IRRC), are correlated with firm value and stockholder returns. Based on this analysis, we put forward an entrenchment index based on six provisions – four "constitutional" provisions that prevent a majority of shareholders from having their way and two "takeover readiness" provisions that boards put in place to be ready for a hostile takeover. We find that increases in the level of this index are monotonically associated with economically significant reductions in firm valuation, as measured by Tobin's Q. We present suggestive evidence that the entrenching provisions cause lower firm valuation. We also find that firms with higher level of the entrenchment index were associated with large negative abnormal returns during the 1990-2003 period. Furthermore, we find that the provisions in our entrenchment index fully drive the correlation, identified by prior work, that the IRRC provisions in the aggregate have with reduced firm value and lower stock returns during the 1990s. We find no evidence that the other eighteen IRRC provisions are negatively correlated with either firm value or stock returns during the 1990-2003 period.

The second essay investigates the effect the imposition of mandatory disclosure in 1964 on over-the-counter firms had on stock volatility, stock returns and stock synchronicity. This study finds that mandatory disclosure is associated with both a dramatic reduction in the volatility of OTC stock returns and with OTC stocks enjoying positive abnormal returns.

The third essay investigates whether the empirical evidence favors state competition for corporate incorporations. The essay concludes that the existing empirical evidence does not favor state competition. Moreover, data on incorporation choices made by firms supports this conclusion. States with wealth-reducing state antitakeover statutes are not penalized in the market for incorporations.

The fourth essay addresses whether dispersion of ownership in the United States can be explained by the U.S. having a strong corporate and securities legal regime. The essay concludes that dispersion of ownership cannot be so explained.

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What Matters in Corporate Governance?

Lucian Bebchuk, Alma Cohen, and Allen Ferrell

I. INTRODUCTION

There is now widespread recognition – as well as growing empirical evidence – that corporate governance arrangements can substantially affect shareholders. But which provisions, among the many provisions firms have and outside observers follow, are the ones that play a key role in the link between corporate governance and shareholder value? This is the question we investigate in this paper.

An analysis that seeks to identify which provisions matter should not look at provisions in isolation without controlling for other corporate governance provisions that might influence shareholder value. Thus, it is desirable to look at a universe of provisions together. We focus in this paper on the universe of provisions that the Investor Responsibility Research Center (IRRC) monitors for institutional investors and researchers interested in corporate governance. The IRRC follows 24 governance provisions (the IRRC provisions) that appear beneficial to management -- and which may or may not be harmful to shareholders. Prior research has identified a relationship between the IRRC provisions in the aggregate and shareholder value. In an influential article, Gompers, Ishii, and Metrick (2003) found that a broad index based on these 24 provisions, giving each IRRC provision equal weight, was negatively correlated with firm value, as measured by Tobin's Q, as well as stockholder returns during the decade of the 1990s. Not surprisingly, a substantial amount of subsequent research has utilized this index as a measure of how harmful firms' governance provisions are (e.g., Amit and Villalonga (2004); Cremers, Nair, and Wei (2004); Fahlenbrach (2003); Klock, Mansi and Maxwell (2003), Yermack (2004)).

There is no a priori reason, of course, to expect that all the 24 IRRC provisions are equally responsible for the documented correlation between the IRRC provisions in the aggregate and Tobin's Q as well as stock returns in the 1990s. Some provisions might be innocuous or even beneficial. And among those provisions that are negatively correlated with firm value or stockholder returns, some might be more so than others. Furthermore, some provisions might be at least in part the

endogenous product of the allocation of power between shareholders and managers set by other provisions. Thus, the question naturally arises: Which of the 24 IRRC provisions matter? We look inside the box of the IRRC provisions to answer this question.

Identifying which provisions inside the set of twenty-four IRRC provisions can enhance our understanding of the relationship between corporate governance provisions and firm value. To begin, identifying the provisions that do and do not contribute to the negative correlation with Tobin's Q would provide a useful focus for subsequent corporate governance research and practice. These provisions are the ones that have potential relevance for policy-making. Furthermore, knowing which provisions play a key role would likely be useful in identifying the source of the negative correlation between the IRRC provisions in the aggregate and firm performance. Finally, identifying which provisions do and do not matter enables providing a measure of corporate governance quality that would not be affected by the "noise" created by counting provisions that do not matter.

Our investigation of which provisions do and do not matter is theory-driven. We start by examining the IRRC provisions and identifying six that, on theoretical grounds, can be expected to play a significant role in the documented correlation between IRRC provisions, in the aggregate, and shareholder value. Four of these provisions determine the constitutional limits on shareholder voting power. Shareholders' voting power is ultimately the source of their power, and these four arrangements – staggered boards, limits to shareholder amendments of the bylaws, supermajority requirements for mergers, and supermajority requirements for charter amendments – limit the extent to which a majority of shareholders can impose its will on management. Two other provisions are the most well-known and salient measures taken in preparation for a hostile offer – poison pills and golden parachute arrangements. We construct an index, which we label the "entrenchment index," based on these six provisions. Each company in our database is given a score, from zero to six, based on the number of these provisions that the company has in the given year or month. Our hypothesis is that the six provisions in the entrenchment index substantially drive the correlation between the IRRC provisions, in the aggregate, and shareholder value.

We first explore whether these entrenching provisions are correlated with lower shareholder value as measured by Tobin's Q. We find that, controlling for the rest of

the IRRC provisions, the entrenching provisions – both individually and in the aggregate – are negatively correlated with Tobin's Q. Increases in our entrenchment index are correlated, in a monotonic and economically significant way, with lower Tobin's Q values. Moreover, the entrenchment index as an explanatory corporate governance variable for firm valuation outperforms (in terms of minimizing expected information loss) an index based on all 24 IRRC provisions according to both the Akaike Information Criterion and the Schwarz Bayesian Information Criterion.

Moreover, the provisions in the entrenchment index appear to be largely driving the correlation that the IRRC provisions in the aggregate have with Tobin's Q. We find no evidence that the 18 provisions not in the entrenchment index are in the aggregate negatively correlated with Tobin's Q. (Indeed, we find that they have a positive correlation with Tobin's Q, though the magnitude of this correlation is very small.) And we find no evidence that any of the other 18 IRRC provisions is individually negatively correlated with Tobin's Q in contrast to the provisions in the entrenchment index.

Of course, documenting that entrenching provisions are negatively correlated with lower firm valuation does not establish that entrenching provisions cause lower firm valuation. Perhaps low value firms and firms with poor management (and hence have low firm valuations) adopt entrenching provisions. We present some suggestive, albeit not conclusive, evidence that the entrenching provisions are in fact causing lower firm valuation. We find that a firm's entrenchment score as of 1990 has a negative effect, with economic and statistical significance, on firm valuation during the 1998-2002 period. This is probative of causation because a firm's 1990 entrenchment index is correlated with its entrenchment index score in the 1998-2002 but is itself obviously not the result of low firm valuation in the 1998-2002 period. In addition, we examine the effect of a firm's 1990 entrenchment index score on firm valuation in the 1998-2002 period controlling for firm valuation in 1990. Management that fails, as of 1990, to maximize firm valuation is thereby controlled for. The entrenchment index remains negatively correlated, with economic and statistical significance, with lower firm valuation.

We then turn to explore the extent to which these six entrenching provisions are responsible for the documented correlation between the IRRC provisions and reduced stockholder returns during the 1990s. We find that the entrenching provisions were correlated with a reduction in firms' stock returns both (i) during the

1990-1999 period that Gompers, Ishii and Metrick (2003) studied, and (ii) during the longer 1990-2003 period that we were able to study using the data we had. A strategy of buying firms with low entrenchment index scores and, simultaneously, selling short firms with high entrenchment index scores would have yielded substantial abnormal returns. To illustrate, during the 1990-1999 period, buying an equally-weighted portfolio of firms with a 0 entrenchment index score and selling short an equally-weighted portfolio of firms with entrenchment index scores of 5 and 6 would have yielded an average annual abnormal returns of approximately 7%. The abnormal returns associated with low entrenchment index levels are robust to controlling for firms' industry classification as well as controlling for the number of other IRRC provisions firms had not included in the entrenchment index. In contrast, we do not find evidence that these eighteen other IRRC provisions, not in our entrenchment index, are correlated with reduced stock returns during the time periods (1990-1999; 1990-2003) we study.

A finding of a correlation between governance and returns during a given period is subject to different possible interpretations (Gompers, Ishii & Metrick (2003); Cremers & Nair (2004); Core, Guay & Rusticus (2003)). Needless to say, our results on returns should not be taken to imply that the identified correlation between the entrenchment index and returns should be expected to continue in the future. But our return results do highlight the significance that the entrenchment index provisions have among the larger universe of IRRC provisions.

Our findings concerning the key role played by a subset of the IRRC provisions cast some doubt on the wisdom of an approach recently followed by shareholder advisory firms. Responding to the demand for measures of the quality of corporate governance, some shareholder advisory firms have developed and marketed indexes based on a massive number of governance attributes. The Institutional Shareholder Services (ISS), the most influential shareholder advisory firm, has developed a governance metric based on 61 elements (see Brown and Caylor (2004)). Governance Metric International has been even more ambitious, including more than 600 provisions in its index. The development and use of these indexes has put pressure on firms to change their governance arrangements in ways that would improve their rankings.

Our results indicate that a "kitchen sink" approach that counts all conceivably relevant provisions might not be best. Among a large set of governance provisions,

the provisions of real significance are likely to constitute only a limited and possibly small subset. Pressuring firms to improve their index rankings could be counter-productive when the index gives weight to many innocuous or even beneficial provisions and correspondingly under-weights provisions that are in fact harmful to shareholders. And governance quality could well be measured more accurately by using a smaller index based on the provisions that do matter than by using a broader index that counts many provisions that do not in fact matter and only serve to introduce "noise." Thus, investment decisions and governance improvements could be better served by an approach that seeks to identify and focus on key harmful provisions rather than attempt to count all the trees in the governance forest. Recent empirical research in corporate governance has used our entrenchment index as a measure of the extent to which managers entrench themselves (e.g., Ashbaugh, Hollins and Lufand (2004); Kau, Linck and Rubin (2004); Litov (2005)).

By way of limitation, while we believe that our work identifies some key governance provisions that matter, and some that do not, our work cannot be relied on to have identified all the governance arrangements that matter. Our investigation is limited to the universe of provisions followed by the IRRC, provisions that are a subset – albeit an important one – of the provisions that could matter.

The rest of our analysis is organized as follows. Section II provides the needed background in terms of theory, institutional detail, and prior work. Section III describes the data. Section IV studies the correlation between the entrenchment index and firm value. Section V studies the correlation between this index and stock returns during the 1990-1999 and 1990-2003 period. Section VI offers some concluding remarks.

II. Entrenchment: Importance, Determinants, and Prior Work

A. Importance

We take the view – which is shared by many but certainly not all researchers – that arrangements that protect incumbents from removal or its consequences are harmful to shareholders. We refer to such protection as "entrenchment." A large body of theoretical literature has analyzed the possible consequences of

entrenchment, which can affect shareholder interests through many channels (see Bebchuk (2002) for a survey).

Those concerned about insulation from intervention or removal by shareholders have been most concerned about the adverse effects that entrenchment can have on management behavior and incentives. Such insulation might harm shareholders by weakening the disciplinary threat of removal and thereby increasing shirking, empire-building, and extraction of private benefits by incumbents (Manne (1965)). In addition, such insulation might have adverse effects on the incidence and consequences of control transactions (see, e.g., Easterbrook and Fischel (1981))

Concerns about insulation are by no means universal, however, and some strongly believe that insulating incumbents from intervention and removal by shareholders in fact benefits the latter. Such protection might benefit shareholders by inducing management to invest optimally in long-term projects (Stein (1988), Bebchuk and Stole (1993)) and avoid deadweight losses and inefficient actions that might otherwise be undertaken to reduce the likelihood of a takeover bid (Arlen and Talley (2003)). Such protection might also help shareholders by strengthening incumbents' bargaining power and enabling them to extract higher acquisition premia in negotiated transactions (Stulz (1988)).

The disagreements about this basic question of governance are difficult to resolve at the level of theory. Empirical work seems necessary for determining whether the overall effect of entrenching provisions is positive or negative. By examining the correlation between entrenching provisions and shareholder value, we seek to contribute to this inquiry by testing the prediction that higher levels of entrenchments are associated with lower shareholder value.

B. Determinants

What are the provisions in the IRRC universe that are most responsible for, or reflective of, managerial entrenchment? Examining the 24 IRRC provisions, we have identified two types of provisions that are likely significant – (1) constitutional limitations on shareholder voting power, and (2) key hostile takeover readiness measures.

1. Constitutional limitations on shareholders' voting power

At bottom, shareholders' most important source of power is their voting power (Clark 1986). But shareholders' voting power is constrained by constitutional arrangements that determine the subjects on which, and the majority by which, shareholders can pass a binding resolution. The extent to which such structural provisions constrain the ability of a majority of the shareholders to have their way is an important factor in the fundamental allocation of power between management and shareholders. We have identified four such constitutional limitations on shareholder voting power.

(i) *Staggered Boards*: When the board is staggered, directors are divided into classes, typically three, with only one class of directors coming up for reelection each year. As a result, shareholders cannot replace a majority of the directors in any given year, no matter how widespread the support among shareholders for such a change in control. Staggered boards are a powerful defense against removal in either a proxy fight or proxy contests. There is evidence that staggered boards are a key determinant for whether a target receiving a hostile bid will remain independent (Bebchuk, Coates, and Subramanian (2002, 2003)), and that they are negatively correlated with Tobin's Q (Bebchuk and Cohen (2003)). [1]

(ii) *Limits to Amend By-Laws*: In addition to the power to vote to remove directors, shareholders have the power to vote to amend the company bylaws, which contain various governance arrangements. In some companies, shareholders' power to amend the bylaws is constrained by limits included in the corporate charter or the bylaws themselves. Such limits usually take the form of supermajority requirements which can make it difficult for shareholders to pass a bylaw amendment opposed by management because not all non-management shareholders are likely to participate in a vote and management commonly commands or influences some votes.[2]

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[1] It is also worth noting that, throughout the period of study, shareholder resolutions to repeal staggered boards obtained substantial shareholder support. In 2003, for example, such resolutions attracted on average 62% of the shares voted, the highest level of support among all types of shareholder resolutions (Georgeson Shareholder, 2003).

[2] In the recent case of Chesapeake Corp. v Marc P. Shore, a Delaware court ruled that a supermajority requirement of two-thirds of all outstanding shares for a bylaw amendment made it practically impossible for non-management shareholders to remove certain antitakeover provisions that management earlier placed in the bylaws.

(iii) & (iv) *Supermajority Requirements for Mergers and Charter Amendments*: In addition to the power to vote out directors and amend bylaws, shareholders have the power to vote to approve charter amendments and mergers. Some companies, however, have limitations on the ability of shareholders to pass charter amendments (typically in the form of supermajority requirements) and supermajority requirements for approving a merger. When such provisions are present, management might be in a position to defeat or impede charter amendments or mergers even if they lose control of the board. Thus, to the extent that such provisions could enable management and shareholders affiliated with them to block changes, this might discourage outsiders from seeking to gain control of the board through a hostile bid or a proxy contest.[3]

On the basis of the above analysis, we have decided to include the following four provisions in our entrenchment index: staggered boards, limits to amend bylaws, limits to amend charter, and supermajority voting requirements for mergers. We have not included in our index two provisions that can be classified as constitutional limitations on voting power -- limits to voting by written consent, and limitations on the right to call a special meeting -- because of their limited practical significance.

The ability to act by written consent or to call a special meeting enables shareholders to avoid having to wait until the next annual meeting to conduct a vote. When shareholders can neither act by written consent nor call a special meeting they must wait until the annual meeting to conduct any vote. While these provisions impose some delay on shareholder action, their practical significance is not typically substantial. Even when shareholders can act by written consent or call a special meeting, the rules governing proxy solicitations are likely to impose some delay before a vote can be conducted. And waiting until the next annual meeting often does not involve substantial delay; if issues making a vote desirable were to arrive uniformly over time, the next annual meeting would take place an average of 6 month after an issue arose. Thus, because these provisions gain management only a limited delay, their effect on managerial entrenchment is rather limited. Indeed, in a study of hostile takeovers, Bebchuk, Coates, and Subramanian (2003) find that,

[3] It is worth noting that shareholder resolutions to eliminate supermajority provisions obtain substantial shareholder support. In 2003, such resolutions attracted on average 60% of the shares voted, the second-highest level of support among all types of shareholder resolutions (Georgeson Shareholder, 2003).

while staggered boards substantially reduce the likelihood of a hostile bidder's success, limits on special meeting and written consent do not have a statistically significant effect on the outcome of hostile bids.

2. Takeover Readiness

We have also included in our index two provisions that in our view best reflect management's defensive posture and its inclination to protect itself from a hostile bid or its consequences. Poison pills (less colorfully known as shareholder rights plans) are rights that, once issued by the company, preclude a hostile bidder as a practical matter from buying shares as long as the incumbents remain in office and refuse to redeem the pill. Golden parachutes protect incumbents in a different way – by providing management with a soft and sweet landing in the event of ouster and thus by providing it with substantial insulation from the economic costs that it would otherwise bear as a result of losing control.

While both poison pills and golden parachutes are each present in most of the companies in our dataset, it should be noted that companies may adopt these measures not only before but also after the emergence of a hostile bid. Poison pills and golden parachutes are measures that the board has the power to approve at anytime, with no need for a shareholder vote of approval. Thus, even a company that does not have a poison pill in place can be regarded as having "a shadow pill" that would likely be rolled out in the event of a hostile bid (Coates, 2000). Similarly, even when executives do not have a golden parachute in their ex ante compensation contracts, boards can and often do grant executives "golden goodbye" payments when an acquisition offer is already on the table (Bebchuk and Fried (2004, Ch. 7), Hartzell, Ofek and Yermack (2004)).

Although companies may wait to put in place poison pills and golden parachutes until an acquisition is on the table, the fact is that a large number of companies – but not all – have these measures in place rather than roll them out when needed. Having these measures in place is not costless for boards, because institutional investors have been looking unfavorably on poison pills and golden parachutes. During the time period of our study, shareholders' resolutions seeking to limit poison pills or golden parachutes constituted more than 20% of all shareholder resolutions during the 1990-2003 period (Georgeson Shareholder, 2000, 2003). Furthermore, these

types of shareholder resolutions attracted substantial shareholder support; in 2003, resolutions calling for poison pill rescission obtained support from an average of 59% of the voting shareholders, and resolutions calling for future golden parachutes to receive advance approval from shareholders received on average 53% of the votes. Boards that avoid or eliminate poison pills and golden parachutes can win some favorable reactions from institutional investors, as well as eliminate the risk of facing one of the precatory shareholder resolutions that often target such measures.

Lawyers with whom we discussed these questions indicated that, although the board is free to adopt poison pills and golden parachutes at any stage, a management interested in protecting itself might do well to have them in place prior to a hostile bid being made. Seeking board adoption of such measures after a hostile bid is made would often raise more questions and not look as good; could require more effort to convince independent directors to go along; and might be a costly distraction. For these reasons, seasoned M&A lawyers explain that clients concerned about an attack will do better to have the wagons already circled rather than wait to do so only after the battle cries are already heard. Thus, management's decision to put these defensive measures in place indicates a higher level of defensive inclination and readiness.

It is worth noting a difference between the ways in which constitutional limitations and takeover readiness positions could be connected to higher levels of entrenchment and, in turn, lower firm value. Our conjecture is that the four provisions imposing constitutional limitations on shareholder power directly insulate management and thereby reduce firm value. In contrast, the two takeover readiness provisions are not by themselves the cause, but rather are reflections of (and thus proxies for) incumbents' defensive attitudes and inclinations.

3. Other Provisions

We have thus far explained the reasons that have led us to identify six provisions as ones that are likely to matter for measuring the level of entrenchment. These six provisions represent a quarter of the twenty-four IRRC provisions. Their selection for our entrenchment index leaves 18 provisions for the residual "other provisions" index.

Of these 18 provisions, a significant number are ones that in our assessment cannot be expected to have any material effect on the level of entrenchment. For example, fair price provisions and business combination statutes are takeover protections that were deemed important in the late 1980s but have become largely irrelevant by subsequent legal developments that provide incumbents with the power to use more powerful takeover defenses (Bebchuk and Ferrell 2001). As long as incumbents are in office, they can now use a poison pill to prevent a bid, and thus have little need for whatever impediments are provided by fair share and business combination arrangements. And if the bidder were to succeed in replacing incumbents with a team that would redeem the pill, fair price and business combination arrangements would remain irrelevant because they apply only to acquisitions not approved by the board.

Another takeover-related provision that we believe is unlikely to be material is the presence of blank check preferred stock. This provision was included by the IRRC and prior research in the set of studied provisions because blank check preferred is the currency most often used for the creation of poison pills. But lawyers are able to create poison pills without blank check preferred. Indeed, in the IRRC data, of the companies that did not have a blank check preferred stock in 2002, about 45% nevertheless had a poison pill in place.

Three of the IRRC provisions are connected to issues of liability and indemnification. As Black, Cheffins and Klausner (2003) powerfully argue and document, directors are protected from personal liability by a myriad of factors and the risk of liability is negligible even in companies that do not have any of these three provisions. Personal liability might arise in some rare cases of egregious bad faith behavior, but in such cases the three liability and indemnification provisions in the IRRC set would provide no protection.

While we have good reasons for viewing most of the provisions in the other provisions index as unlikely to be significant for measuring entrenchment, there were some for which a good assessment was difficult to reach on theoretical grounds. Our strategy, however, is to include in the entrenchment index only those provisions for which we had a good basis for viewing as ones likely to matter for measuring entrenchment, relegating all others provisions to the other provisions index. Our prediction is that the provisions in the entrenchment index drive to a substantial

degree the correlation earlier research has identified between the IRRC provisions, in the aggregate, and firm value.

C. Prior Empirical Work

Our work builds on the large body of existing work on the relationship between corporate governance provisions (and the IRRC provisions in particular) and shareholder value. To begin, there is a substantial amount of research that seeks to examine the effects of one or more of the IRRC governance provisions without controlling for a large universe of other governance provisions. One set of studies has examined the effects of the passage of antitakeover statutes on shareholder interests (see, e.g., Karpoff and Malatesta (1989), and Swartz (1998), and see Gartman (2000) for a survey of this body of work).[4] This work did not control for governance provisions other than those provided by antitakeover statutes. Furthermore, for the reason briefly described earlier, state anti-takeover statutes should not expected to be a key determinant of the level of protection from removal that management enjoys in any given company.

Another set of studies examines how the adoption of a poison pill (see, e.g., Ryngaert (1988)) or a golden parachute (see Lambert and Larker 1985) affected stock prices. When a firm adopts a poison pill or a golden parachute, however, its stock price might be influenced not only by the expected effect of the poison pill or the golden parachute but also by inferences that investors make as to management's private information about the likelihood of a bid (Coates, 2000). Furthermore, these studies did not control for whatever governance provisions the firms adopting the poison pill or golden parachute had.

Garvey and Hanka (1999), Johnson and Rao (1997), and Borokohovich, Brunarski, and Parrino (1997) study the effects of antitakeover charter provisions. However, they lump together some antitakeover provisions that can be expected to have significant effects with those that cannot, and they do not include the full set of provisions that are likely to be significant. The above studies also rely in part on data

[4] In addition to the above event studies, there is also work that finds that the passage of state antitakeover statutes increased management's tendency to take actions favorable to it such as making executive compensation schemes less performance-sensitive (e.g., Bertrand and Mullainathan (1999, 2003)).

from the 1980's, i.e., prior to the legal developments that permitted incumbents to maintain poison pills indefinitely and thereby substantially expanded management's power to resist hostile bids.

In addition to the large literature that focused on the effects of an isolated subset of the IRRC provisions, there is also recent work that looks at the effects of the IRRC provisions in the aggregate. As already noted, Gompers, Ishii, and Metrick (2003) study the correlation between the IRRC provisions in the aggregate and firm value as well as stock returns. Their work started a line of research using their governance index (herein, the GIM index) based on the 24 IRRC provisions (e.g., Amit and Villalonga (2004); Core, Guay and Rusticus (2003); Cremers, Nair, and Wei (2004); Cremers and Nair (2003); Fahlenbrach (2003); Klock, Mansi and Maxwell (2003)). Our work complements this line of work in that we focus on what, inside the box of the IRRC provisions, matters.

The work closest to ours is Bebchuk and Cohen (2003), which started investigating which of the IRRC provisions matter controlling for the others. This study shows that, controlling for all other IRRC provisions, staggered boards are negatively correlated with Tobin's Q, and that their contribution to the negative correlation between the IRRC provisions in the aggregate and Tobin's Q is substantially larger than the contribution of an average provision in the IRRC set. But this study did not attempt to identify which provisions other than staggered boards matter, and it did not investigate the correlation between IRRC provisions and stock returns. Thus, this study completed only the first step in the inquiry we seek to pursue more fully in this paper.

III. DATA

A. Sources

Our data set includes all the companies for which there was information in one of the volumes published by the Investor Responsibility Research Center (IRRC). The IRRC volumes include detailed information on the corporate governance arrangements of firms. The IRRC has published six such volumes: September, 1990; July, 1993; July, 1995; February, 1998; November, 1999; and February, 2002.

Each volume includes information on between 1,400 and 1,800 firms, with some variation in the list of included firms from volume to volume. All the firms in the S&P 500 are covered in each of the IRRC volumes. In addition, a number of firms not included in the S&P 500 but considered important by the IRRC are also covered. In any given year of publication, the firms in the IRRC volume accounted for more than 90% of the total U.S. stock market capitalization.

Because IRRC did not publish volumes in each year, we assumed, following Gompers, Ishii and Metrick (2003), that firms' governance provisions as reported in a given IRRC volume were in place during the period immediately following the publication of the volume until the publication of the subsequent IRRC volume. Using a different "filling" method, however, does not change our results.

In addition to the IRRC volumes, we also relied upon Compustat, CRSP, and ExecuComp. Firm financials were taken from Compustat. Stock return data was taken from the CRSP monthly datafiles. Insider Ownership data was taken from ExecuComp. The age of firms, following Gompers, Ishii and Metric (2003), was estimated based on the date on which pricing information about a firm first appeared in CRSP.

In calculating abnormal returns we used the three Fama-French benchmark factors, which were obtained from Kenneth French's website. The Carhart momentum factor was calculated by us using the procedures described in Carhart (1997) using information obtained from CRSP.

We excluded firms with a dual class structure. In these companies the holding of superior voting rights might be sufficient to provide incumbents with a powerful entrenching mechanism that renders other entrenching provisions relatively unimportant. We also excluded real estate investment trusts (REITs), i.e. firms with a SIC code of 6798, as REITs have their own special governance structure and entrenching devices. While we kept both financial and nonfinancial firms in our data, running our regressions on a subset consisting only of nonfinancial firms (as done by Daines (2001)) yields similar results throughout.

B. Summary Statistics

Table I provides summary statistics about the incidence of the 24 IRRC governance provisions, including the six provisions we have chosen to include in our entrenchment index, during the period covered by our study.[5]

Of the six provisions in the entrenchment index, staggered boards, golden parachutes and poison pills are the most common, with each present in a majority of companies. The incidence of golden parachutes has been increasing steadily, starting at 53% as of 1990 and reaching approximately 70% in 2002. The incidence of staggered boards has been stable at around 60%, and the incidence of poison pills has been relatively stable as well - in the 55% - 60% range.

The incidence of supermajority provisions has been declining slightly over time, starting at 39% in 1990 and ending at approximately 32% in 2002. The incidence of limits to bylaws has been increasing, starting at 14.5% in 1990 and reaching approximately 23% by 2002. Of the six provisions, the only one that does not have a substantial presence are provisions that limit charter amendments, which has throughout the 1990-2002 period a very low incidence hovering around 3%.

The entrenchment index assigns each company one point for each of the six provisions in the index that the firm has. Accordingly, each firm in each year will have an entrenchment index score between 0 and 6. Table II provides summary statistics about the incidence of the index levels during the period of our study. On the whole, there has been a moderate upward trend in the levels of the entrenchment index during this period. While 55% of the firms had an index level below 3 in 1990, only 49% of the firms were in this range in 2002. Especially significant has been the decline in the incidence of firms with 0 entrenchment level – from 13% in 1990 to approximately 7% in 2002.

As for the cross-sectional distribution of firms across entrenchment levels, roughly half of the companies have an entrenchment level of 3 or more, while

[5] We use throughout the definitions of the IRRC provisions used by Gompers-Ishii-Metrick (2003). For example, because the IRRC used in some years the term secret ballot and in some years the term confidential voting to describe essentially the same arrangement, GIM defined a company as having no secret ballot in a given year when it did not have in that year in the IRRC dataset either the secret ballot variable or the confidential voting variable. To give another example, GIM defined a company as having a fair price arrangement in a given year when in that year it (i) had the variable for a fair price charter provision, or (ii) had the variable indicating incorporation in a state with a fair price provision and (iii) did not have the variable indicating a charter provision opting out of the state's statute. We are grateful to Andrew Metrick for providing us with the GIM set of definitions of the 24 IRRC provisions.

roughly half have an entrenchment level below 3. Of the half of the firms with entrenchment levels below 3, a substantial fraction are at 2, with firms at the 0 and 1 levels constituting 23% - 31% of all firms. For the roughly half of the firms with entrenchment levels of 3 or more, a substantial fraction are at 3, with firms in the 4-6 range constituting 19% - 23% of all firms.

A relatively small fraction of firms are at the extremes. Given that one of the provisions is present in only about 3% of firms, it is not surprising that only a few firms reach the maximum level of 6, with its incidence never exceeding 0.7% of the sample. Given the small number of observations with entrenchment index scores of 6, firms in index level 6 are grouped together with firms in index group 5 in the course of conducting the statistical analysis. This group of companies with index scores of 5 and 6 – the very worst companies in terms of their entrenchment scores – constitute approximately 3.5% - 5% of all firms throughout the period. At the other end of the spectrum, the group of companies that are the "best" in terms of entrenchment are those firms with a 0 entrenchment level. These firms constitute roughly 7% - 13% of all firms during the 1990-2002 period.

The correlation between the entrenchment index and the GIM index exceeds 0.7 in each of the years of the IRRC volumes. Table III displays the tight connection that membership in the extreme "democracy" (GIM index score of five or less) and "dictatorship" groups (GIM index score of fourteen or more) has with the entrenchment index. In 2002, of the more than 100 firms in the "democracy" portfolio, none are in the top half in terms of the entrenchment index (i.e., have an entrenchment score of 3 or more). Of the more than 100 firms in the "dictatorship" portfolio, only 1 is in the bottom half of the entrenchment range (i.e., has an entrenchment score below 3). Thus, to the extent that differences in entrenchment are correlated with difference in Tobin's Q or stock returns, they will likely produce corresponding differences between the "democracy" and "dictatorship" portfolios as a result of this correlation.

Table IV presents the correlation matrix of the six entrenching provisions for the entire sample period. The correlation matrix of the entrenching provisions in individual years is essentially the same. The correlation between many of the entrenching provisions is relatively low. Nine out of the fifteen correlations is less than .1. The highest correlation is that between poison pills and golden parachutes, our two "takeover readiness" provisions. The second highest correlation, at .24, is

that between limits on ability of shareholders to amend the corporate bylaws and limits on shareholders' ability to amend the corporate charter.

Table V displays the mean and standard deviation of entrenchment levels for companies of different sizes and cohorts. There are no significant differences between firms in and out of the S&P 500, and there are likewise no noteworthy differences between young and old firms. It is worth noting, however, that entrenchment levels are different in firms that are very large in size. In 2002, out of the 15 companies with a market cap exceeding 100 billion dollars, only one had an entrenchment level index exceeding 3. This is not surprising. With no hostile bid or proxy fight ever directed at a company of this size, the management of these very large firms have no need for entrenching provisions in order to be secure.

To control for other governance provisions, we defined an index based on the other eighteen corporate governance provisions not included in the entrenchment index, which we label the other provisions index (O index). This index, like the entrenchment index and the GIM index, counts all provisions included in it equally, giving one point for each one of these provisions a firm has. The other provisions index and the entrenchment index add up, of course, to the GIM index based on the full set of IRRC provisions.

Table VI provides the distribution of the other provisions index for the IRRC publication years. As Table VI indicates, the highest level of the O index actually reached by firms is 13; and the lowest level of the O index that firms actually have is 1. Approximately 40% - 45% of firms have an O index score of 6 or less with the remaining firms having an O index score of 7 or more. There are very few firms at the extremes, with only roughly 1% of firms having an O index score of 1 or 2 and another 1% of firms having an O index score of 12 or 13. The correlation between the O index and the entrenchment index ranges from 0.3 to 0.35 throughout the 1990-2002 period.

IV. Entrenchment and Firm Value

In studying the association between the entrenchment index and firm value, we use Tobin's Q as the measure of firm value. In doing so we follow earlier work on the association between corporate arrangements and firm value (see, e.g., Demsetz and Lehn (1985), Morck, Shleifer and Vishny (1988), McConnell and Servaes

(1990), Lang and Stulz (1994), Yermack (1996), Daines (2001), LaPorta et al. (2002), and Gompers, Ishii, and Metrick (2003)).

We use the definition of Tobin's Q that was used by Kaplan and Zingales (1997) and subsequently also by Gompers, Ishii, and Metrick (2003). According to this specification, Q is equal to the market value of assets divided by the book value of assets, where the market value of assets is computed as the book value of assets plus the market value of common stock less the sum of book value of common stock and balance sheet deferred taxes. This measure (and simpler ones that drop deferred taxes) have been increasingly used in light of the complexities involved in the more sophisticated measures of Q and the evidence of very high correlation between this proxy and more sophisticated measures (see, e.g., Chung and Pruitt (1994)).

Our dependent variable in most regressions is log of industry-adjusted Tobin's Q, where industry-adjusted Tobin's Q is a firm's Q minus the median Q in the firm's industry in the observation year. We defined a firm's industry by the firm's 2-digit primary SIC code. Using the Fama-French (1997) classification of forty-eight industry groups, rather than SIC two-digit codes, yields similar results. Using industry-adjusted Tobin's Q as the dependent variable also produces similar results.

As independent variables, we use throughout standard financial controls. These controls include the assets of the firm (in logs), the age of the firm (in logs) (Shin and Stulz (2000)), and whether the firm is incorporated in Delaware -- all variables use by Gompers, Ishii, and Metrick (2003). We also use additional controls that the literature has used in Q regressions -- the level of insider ownership, return on assets, capital expenditures on assets, research and development expenditures, and leverage. (Using only the controls used by Gompers, Ishii, and Metrick produces similar results throughout.) Moreover, we use dummies for firms' 2-digit SIC codes. In all of the regressions, in addition to the standard financial and ownership controls, we controlled for firms' other provisions index scores in order to control for the IRRC provisions not included in the entrenchment index. In our Q-regressions, we focus on the period 1992-2002, because our inside ownership data (from ExecuComp) did not cover 1990, 1991, 2003.

A. The Entrenchment Index and the Other Provisions Index

Table VII presents the results of pooled OLS regressions for the 1992-2002. The pooled OLS regressions in Table VII were run using White (1980) robust standard errors to account for potential heteroskedasticity. In the first column of Table VII, we used as an independent variable, in addition to the financial variables and other provisions index discussed above, firms' entrenchment index scores. As column 1 indicates, the coefficient on the entrenchment index is negative (with a value of -.044) and statistically significant at the 1% level. The coefficient of the other provisions index is also significant at the 1% level, but it is positive (with a value of .01).

In the second column, in order to avoid the imposition of linearity on the entrenchment index, we used dummy variables to stand for the different levels that the index can take. As the results indicate, the coefficient for any level of the index above 0 is negative and significant at the 1% level. Moreover, the magnitude of the coefficient is monotonically increasing in the level of the entrenchment index.

To avoid imposition of linearity on the other provision index, we also ran unreported regressions using the log of the other provisions index as a control, and obtained similar results to those reported in Table VII. In unreported regressions, we also ran regressions using industry-adjusted Q as the dependent variable instead of its log, and obtained similar results. Finally, we ran median regressions and, again, obtained similar results.

We next ran regressions using firm fixed effects in order to control for unobserved firm heterogeneity that remains constant over the time period we study. The fixed effects regressions, reported in columns 3 and 4 of Table VII, examine the effect on firm value of changes that firms made, during the 1990-2003 period, in the number of entrenching provisions (whether to increase or decrease the number of entrenching provisions). As Table I indicates, there was meaningful variation in the incidence of some entrenching provisions over the 1990-2003 period, such as golden parachutes and limits on shareholders' ability to amend bylaws, that would result in changes in firms' entrenchment scores. Other entrenching provisions, and in particular staggered boards, were rarely changed by firms during the period of study, and are therefore unlikely to constitute a significant source for changes in firms' entrenchment scores.

As columns 3 and 4 indicate, in the firm fixed effects regressions, the coefficient values for the entrenchment index (column 3) and the coefficient values for the

dummy variables for the different levels of the entrenchment index above 0 (column 4) remain negative, economically meaningfully, and statistically significant at the 1% level (except for the coefficient value on having an entrenchment level of 1 where the statistical significance is 5%). The magnitudes of the coefficient values also continue to increase monotonically in the level of the entrenchment index. The coefficient value on the other provisions index remains positive, but is no longer statistically significant.

For a final robustness check, we also ran annual regressions. In all regressions, we used the entrenchment index and the other provisions index as the independent governance variables. We first ran a set of annual regressions similar to the baseline regressions in column 1 of Table VII – that is, OLS regressions with log of industry-adjusted Q as the dependent variable. We then also ran a set of median regressions with log of industry-adjusted Q as the dependent variable, as well as a set of OLS regressions with industry-adjusted Q as the dependent variable. We calculated the Fama-McBeth coefficients for each set of annual regressions.

Table VIII displays the results of these three sets of annual regressions, displaying only the coefficients of the entrenchment index and of the other provisions index. The coefficient of the entrenchment index is negative in all of the individual annual regressions. Of the 33 estimated negative annual coefficient values on the entrenchment index (three sets of annual regressions per year times eleven years), 27 were statistically significant. Of the six negative coefficient values without significance, three occurred in one year (1992). The Fama-McBeth coefficient value on the entrenchment index is negative at the 1% level for each one of the three sets of annual regressions.

As for the other provisions index, the coefficient on the other provisions index in the annual regressions is positive in a substantial majority of the annual regressions, and occasionally positive with statistical significance. It is never negative and statistically significant in any of the annual regressions. The Fama-McBeth coefficient value on the entrenchment index is positive at the 1% level in each one of the three sets of annual regressions, albeit with a coefficient with a small magnitude.

B. AIC and SBIC Model Selection Criteria

The preceding section has documented that the entrenchment index is negatively correlated, with statistical and economic significance, with firm valuation. The other provisions index, in contrast, has a much lower (and in some specifications non-existent) correlation with firm valuation. But these findings, however, do not directly address the likelihood that a model using the entrenchment index as the sole corporate governance explanatory variable provides a better prediction of firm valuation than a model that uses only the GIM index or the other provisions index as the corporate governance variable. To address this issue, we will use two standard model selection criteria: the Akaike Information Criterion (AIC) and the Schwarz Bayesian Information Criterion (SBIC). Both of these criteria provide a measure of the expected information loss associated with using a particular model.

We calculated both the AIC and SBIC scores for three models: (a) a model using the entrenchment index as the sole corporate governance explanatory variable; (b) a model using the GIM index as the sole corporate governance explanatory variable; and (c) a model using the other provisions index as the sole corporate governance explanatory variable. All three models used, in addition to the specified corporate governance variable, the standard financial controls used earlier in the Table VII regressions. As indicated by having the lowest AIC and SBIC scores, model (a) -- the model using the entrenchment index as the sole corporate governance explanatory variable -- has the lowest expected information loss.

We then calculated for each model, based on their AIC and SBIC scores, the probability that the model provides the "best" model (in terms of minimizing expected information loss) relative to the other two models (see Wagenmakers & Farrell 2004). These calculations indicate that model (a), with approximately 99.999% probability, provides a better model than a model using either the GIM index or the other provisions index.

These findings are summarized in the chart below. ΔAIC and ΔSBIC are, respectively, the differences between a model's AIC and SBIC scores and the scores of the model with the lowest AIC and SBIC score, i.e. model (a).

	ΔAIC	ΔSBIC	Akaike Weights	Schwarz Weights
Model (a)	0	0	$\approx$ 99.999%	$\approx$ 99.999%

Model (b)	81	88	≈ 0%	≈ 0%
Model (c)	111	112	≈ 0%	≈ 0%

The AIC and SBIC analysis leads to the qualitative judgment that the entrenchment index as a corporate governance explanatory variable for firm valuation outperforms the GIM index and other provisions index. This suggests that the inclusion of non-entrenching corporate governance provisions in the GIM and other provisions index results in noise being introduced into the measure of the quality of a firm's corporate governance arrangements.

C. Individual Provisions: Looking Inside the Two Indexes

The analysis in section A indicates that the six entrenching provisions we have identified are, in the aggregate, highly correlated with lower firm valuation. There is still the possibility, however, that one or more of the individual entrenching provisions are not contributing to this negative effect on firm valuation. To explore this possibility, we ran several sets of regressions whose results are displayed in Table IX.

In the first set of six regressions, we ran a regression for each of the six provisions in the entrenchment index in which the independent corporate governance variables were (i) one of the six entrenching provisions, and (ii) the GIM index minus the entrenching provision in (i). That is, each of the regressions has one of the entrenching provisions as an independent variable while controlling for all the other IRRC provisions. The financial controls used earlier (see Table VII regressions) are also used as independent variables.[6]

The results of these six regressions, one for each of the entrenching provisions, are displayed in Row (1) of Tale VIII. In each of the regressions, the coefficient of the entrenching provision under investigation is negative and statistically significant. Five entrenching provisions have statistically significant negative coefficient values

[6] We display only the coefficients of the entrenching provision being investigated in each regression. In all the regressions, the coefficient of the GIM index minus the provision under investigation is negative and significant, and the coefficients of the financial controls are similar to those obtained in earlier regressions.

at the 1% level, while the other one has statistical significance at the 5% significance.

It is worth cautioning that not too much should be read into the differences in the levels of statistical significance and coefficient estimates of the various entrenching provisions due to the problem of co-linearity. Each entrenching provision is positively correlated with the GIM index minus that entrenching provision. Accordingly, it might well be that any particular entrenching provision's coefficient is under estimated. The one conclusion that can be comfortably drawn from the results displayed in Row (1) of Tale VIII is that each of the entrenching provisions contributes to the negative correlation between Tobin's Q and the IRRC provisions in the aggregate.

For a robustness check, we then proceeded to run three additional sets of regressions. In particular, we ran for each entrenching provision i the following types of regressions:

(a) A regression in which the independent corporate governance variables in addition to entrenching provision i are (1) a variable equal to the entrenchment index minus provision i, and (2) the other provisions index.

(b) A regression in which the independent corporate governance variables in addition to entrenching provision i are (1) dummy variables for each of the five other entrenching provisions, and (2) the other provisions index.

(c) A regression in which the independent corporate governance variables in addition to entrenching provision i are dummy variables for each of the other twenty-three IRRC provisions.

Rows 2, 3, and 4 of Table IX display the results of the regressions of type (a), (b), and (c) respectively. For each one of the six entrenching provisions, the coefficient in each of the three types of regressions was negative and statistically significant at 1% or 5%. Thus, none of our robustness tests provide any evidence that is inconsistent with the view that each of the six entrenching provisions contributes to the negative correlation that the IRRC provisions in the aggregate have with Tobin's Q.

We now turn to the eighteen provisions in the Other Provisions Index. The results reported earlier indicate that, in the aggregate, these eighteen provisions are not negatively correlated with firm valuation. This finding does not imply, however, that none of the eighteen provisions contained in this index is harmful for firm

valuation. It might be that one or more provisions have adverse effects, but this effect does not show up in our regressions because it is diluted or counteracted by the effects of the provisions contained in the other provisions index. Indeed, the results of our paper highlight the importance of looking inside the "box" of a broad index to try to identify the effects of particular corporate governance provisions.

Accordingly, we carried out a preliminary investigation to look inside the other provisions index. We ran four sets of eighteen regressions (for seventy-two regressions overall) whose results are displayed in Table X. In particular, for each provision i in the other provisions index, we ran the following four types of regressions:

(a) A regression in which the independent corporate governance variables were provision i, and a variable equal to the GIM index minus provision i;

(b) A regression in which the independent corporate governance variables were provision i, a variable equal to the other provision index minus provision i, and the entrenchment index;

(c) A regression in which the independent corporate governance variables were provision i, dummies for each of the other seventeen provisions in the other provisions index, and the entrenchment index; and

(d) A regression in which the independent corporate governance variables were provision i and dummies for each of the other twenty-three IRRC provisions.

Rows 1, 2, 3, and 4 of Table X display the results of the regressions of type A, type B, type C, and type D respectively (only the coefficient of the provision under investigation in any given regression is displayed). The standard financial controls used in earlier regressions were also used in these regressions (see regressions in Table VII). Of the eighteen IRRC provisions in the other provisions index, seventeen of them do not have a coefficient that is negative and statistically significant in any of the types of regressions used. Indeed, a fair number of them are positive with statistical significance.

With respect to one provision in the other provisions index, pension parachutes, its coefficient is not statistically significant in regression type D, negative and significant at the 10% level in regression types B and C, and negative and significant at the 5% level in regression type A. The results with respect to the negative effect of pension parachutes on firm valuation are thus mixed, and weaker than the results for each of the entrenching provisions. It is worth noting that pension parachutes are

present in only 1% of firms as of 2002 (and reached a maximum of 5.3% of firms in 1993). Despite the mixed results and low incidence, the exact correlation between pension parachutes on firm valuation is an issue worth further exploration in future research.

It is important to note that, because of the problem of co-linearity, we do not rule out the possibility that some of the eighteen provisions in the other provisions index are negatively correlated with firm value. We merely note that, using the same method that produced strong and unambiguous results regarding the negative correlation between each of the entrenching provisions and Tobin's Q, we do not obtain similar results with respect to any of the elements of the other provisions index.

D. Some Suggestive Evidence on Causation

The findings reported so far have established that the entrenchment index, and the individual provisions that collectively constitute the entrenchment index, are inversely correlated, with economic and statistical significance, with firm valuation even after controlling for a number of other variables that might affect firm valuation. Of course, these findings, by themselves, do not establish that having a higher entrenchment index score is the cause of lower firm valuation. It is possible that the correlation is the result of lower-valued firms adopting entrenching provisions either because low-value firms might be more concerned with hostile takeovers or, alternatively, bad management will tend to both adopt entrenching provisions and reduce firm valuation. It is worth noting that the bad management causation story for the documented correlation is hardly a ringing endorsement of entrenching provisions.

We present in this section some suggestive evidence that having a higher entrenchment score is in fact the cause of lower firm valuation. Before we proceed, however, we do wish to emphasize from the outset two important caveats. First, the evidence we present, while suggestive, does not definitely establish the direction of causation. Second, even if a higher entrenchment index score is causally responsible for lower firm valuation this does not exclude the possibility that some of the documented correlation is also driven by poor management adopting entrenching

provisions or low-value firms' tendency, holding constant the quality of management, to adopt entrenching provisions.

Our test of causation rests on the fact that there was a meaningful amount of stability in firm's entrenchment index scores over the 1990-2002 period. A firm with a high entrenchment score as of 1990, for instance, was likely to have a high entrenchment score in 2002. With respect to some of the entrenching provisions, it is necessary to first obtain shareholder approval before they can be adopted. This makes it difficult for firms that did not already have these entrenching provisions as of 1990 to adopt them. The most notable example of this phenomenon is staggered boards. Throughout the 1990-2002 period it was extremely difficult for management to receive shareholder approval for the adoption of a staggered board. With respect to other entrenching provisions that did not require a shareholder vote -- poison pills and golden parachutes -- management could unilaterally adopt these provisions. This makes the presence of these two provisions at a particular point in time more likely to be the result of an endogenous firm decision at that point than the other entrenching provisions. Even so, there are some costs of management of suddenly adopting one of these provisions given possibly negative public and market reaction. It is easier to retain a pre-existing poison pill or golden parachute then to suddenly adopt one.

We examine whether a firm's entrenchment score in 1990, the beginning of our sample period, had a negative effect on firm valuation in the 1998-2002 period, the years at the end of our sample period. While a firm's 1990 entrenchment score is correlated with the firm's entrenchment score during the 1998-2002 period for the reasons described above, the firm's 1990 entrenchment score cannot itself be the result of low-firm valuation during the 1998-2002. Column 1 of Table XI presents the results of running a regression where the dependent variable is the log of industry-adjusted Tobin's Q and the independent variables are firms' entrenchment index scores as of 1990 and firms' other provisions scores in the 1998-2002 period. Column 2 presents the results when dummy variables are used for the different levels of firms' entrenchment index scores as of 1990. Both regressions control for the full set of firm characteristics used earlier. As the column 1 results indicate, a firm's entrenchment index score as of 1990 is negatively correlated, with economic and statistical significance (at the 1% level), with lower firm valuation during the 1998-2002 period. The results when dummies are used for the different levels of the

entrenchment index tells the same story. Four out of the five dummy variables are negatively correlated, either at the 1% or 5% level, with lower firm valuation. Only the dummy variable representing the lowest entrenchment score, while having a negative coefficient, was not statistically significant.

It is possible that poor management was responsible both for the adoption of entrenching provisions prior to 1990 and these firms suffering low firm value in the 1998-2002 period. Of course, the likelihood of this explaining the documented correlation is weakened by the fact that managerial turnover is common over a twelve-year period. Nevertheless, given this possibility, we controlled for the log of firms' industry-adjusted Tobin's Q as of 1990 in columns 3 and 4. Low firm valuation as of 1990 will help control for poor management as of 1990. Presumably what makes management poor is their failure to maximize firm value. As before, entrenching provisions are negatively correlated, with economic and statistical significance (at the 1% level), with lower firm valuation. And, as before, four out of the five dummy variables representing the different levels of the entrenchment index are negatively correlated, either at the 1% or 5% level, with lower firm valuation. Only the dummy variable representing the lowest entrenchment score, while negative, is not statistically significant.

V. Entrenchment and Stock Returns

We turn in this section to examine the relationship between a firm's entrenchment index score and the firm's abnormal stock returns. We should stress that for a provision to be associated with negative abnormal return during a given period time is neither a necessary condition, nor a sufficient condition, for the provision to be harmful to shareholders. A corporate governance provision that is harmful to shareholders might have no abnormal returns associated with it during a given period if the market accurately assessed the provision's adverse consequences in the beginning of the period. Conversely, a provision that is in fact beneficial to shareholders might be associated with a negative return during a given period if the market viewed it at the end of the period somewhat less positively – although still positively – than in the beginning of the period. For the purpose of identifying which provisions have adverse effects on shareholders, our findings in the preceding

section on Tobin's Q might well be more informative than stock return results contrived in isolation.

Nevertheless, findings that abnormal returns are associated with certain publicly known governance provisions can be quite interesting. They might indicate that the significance of these provisions, or at least the market's perception of their significance, changed over this period. Much attention has therefore been paid to the findings of Gompers, Ishii and Metrick (2003) that firms with low GIM index scores were associated with higher abnormal returns during the 1990s compared to those of firms with high GIM index scores.

Gompers, Ishii, and Metrick (2003) employed the following methodology in calculating the abnormal return associated with differences in GIM index scores. A "Democracy" portfolio was constructed consisting of firms with strong shareholder rights protections, defined as those firms with GIM index score of 5 or less. Likewise, a "Dictatorship" portfolio was constructed consisting of firms with weak shareholder rights protections, defined as those firms with GIM index score of 14 or more. The firms in the Democracy and Dictatorship portfolios roughly correspond to the best and worst 10% of firms in terms of GIM index scores. Democracy and Dictatorship portfolios were constructed both by weighting stock positions by a firm's market capitalization (value-weighted portfolios) as well as by equally weighting each firm (equal-weighted portfolios).

Gompers, Ishii and Metrick (2003) found that the monthly abnormal return for going long the Democracy portfolio and short the Dictatorship portfolio, value-weighted, was 71 basis points with 1% significance level, and that doing so using equally-weighted portfolios yielded a monthly abnormal return of 45 basis points with 5% significance.[7] Their findings of statistically significant abnormal returns applied only to a trading strategy using Democracy and Dictatorship portfolios -- i.e., firms at the extremes of the GIM index -- in its long and short positions. Expanding their testing to a broader spectrum of firms, including firms in the middle of the GIM index distribution, they found no statistically significant abnormal returns resulting

[7] We were able to replicate these basic findings with the Fama-French benchmark factors. We found that the value-weighted trading strategy generated a monthly abnormal return of 73 basis points at the 1% level, while the equal-weighted trading strategy generated a monthly abnormal return of 49 basis points at the 5% level.

from going long firms with low GIM index scores while shorting firms with high GIM index scores.

We aim in this section to investigate the extent to which the identified correlation between returns and the GIM index during the 1990s might be attributable to the provisions in the entrenchment index. Our main findings are as follows. Low entrenchment index firms are associated with statistically significant abnormal returns both during the 1990-1999 period investigated by Gompers, Ishii, and Metrick, and the longer 1990-2003 time period which our data enables us to study. Moreover, including in our trading strategies firms that are in the middle of the entrenchment index distribution still generates positive monthly abnormal returns with 1% statistical significance, albeit abnormal returns that are smaller than those generated using firms only with extreme entrenchment index scores. We find that this association between entrenchment index scores and stock returns is not due to the entrenchment index being correlated with IRRC provisions not included in the entrenchment index. Finally, we find that the corporate governance provisions not included in the entrenchment index have no explanatory power, above that already provided by the entrenchment index, for returns during the two time periods (1990-1999; 1990-2003) we study.

A. The Entrenchment Index and Returns for the 1990s

1. Summary Statistics

We begin by presenting some basic summary statistics on the entrenchment index and stock returns during the 1990s. Table XII presents the average monthly returns of portfolios of firms, both equally-weighted and valued-weighted, with the same entrenchment scores (0, 1, 2, 3, 4, 5-6) for the September, 1990 – December, 1999 period. Interestingly, the average monthly return drops monotonically as one moves from having an entrenchment score of zero to an index score of five and six. The difference between firms with an entrenchment score of zero and firms with an entrenchment score of five or six is quite substantial: 1.74% versus 1.26% for equally-weighted portfolios and 2.45% versus 1.51% for value-weighted portfolios. Because the returns of value-weighted portfolios can be substantially affected by the returns of a small number of the largest companies, it could be plausibly argued that

more attention should be paid to results based on equally-weighted portfolios. But we follow the literature by reporting throughout results based on both equally-weighted and value-weighted portfolios.

This decline in monthly returns as a firm's entrenchment score increases occurs not only when one moves from firms with very low entrenchment scores to firms with very high entrenchment scores but also as entrenchment index scores increase in the middle of the entrenchment index distribution. Moreover, the decline in monthly returns as a firm's entrenchment score increases holds equally true for both equally-weighted and value-weighted portfolios. In both cases, average returns decrease monotonically as one moves to portfolios with higher entrenchment scores.

Obviously, these summary statistics are only suggestive of a possible relationship between the entrenchment index and stock returns in the 1990s. To explore this possibility systematically, it is necessary to control for other factors, such as systematic risk, that might be affecting stock returns for firms with different entrenchment index scores.

2. The Baseline Model: Controlling for the Carhart Four Factors

To identify the correlation between different levels of the entrenchment index and stock returns, we investigated the following question: What was the abnormal return associated with taking a long position in the firms with a given entrenchment index score and, at the same time, shorting the firms with a higher entrenchment index score? To answer this question, we follow the methodology of Gompers, Ishii, and Metrick (2003) of regressing the return of this long-short trading strategy for month t (call this variable $Diff_t$), on the four-factor model of Carhart (1997). In other words, we ran the following regression:

$$Diff_t = \alpha + b1 * MKTRF_t + b2 * HML_t + b3 * SMB_t + b4 * Momentum_t + e_t \quad (1)$$

where $MKTRF_t$ is the month t value-weighted market return minus the risk-free rate, SMB_t and HML_t are the Fama-French zero-investment benchmark factor mimicking portfolios reflecting, respectively, size and book-to-market stock return effects for time t (see Fama and French 1993) and $Momentum_t$ reflects stock return momentum

effects for time t (see Carhart 1997). The Fama-French factors were obtained from Kenneth French's datalibrary and the Carhart momentum factor was constructed by us using the procedures described in Carhart (1997). Accordingly, α is construed as the monthly abnormal return associated with going long firms with low entrenchment index scores and, simultaneously, shorting firms with high entrenchment index scores.

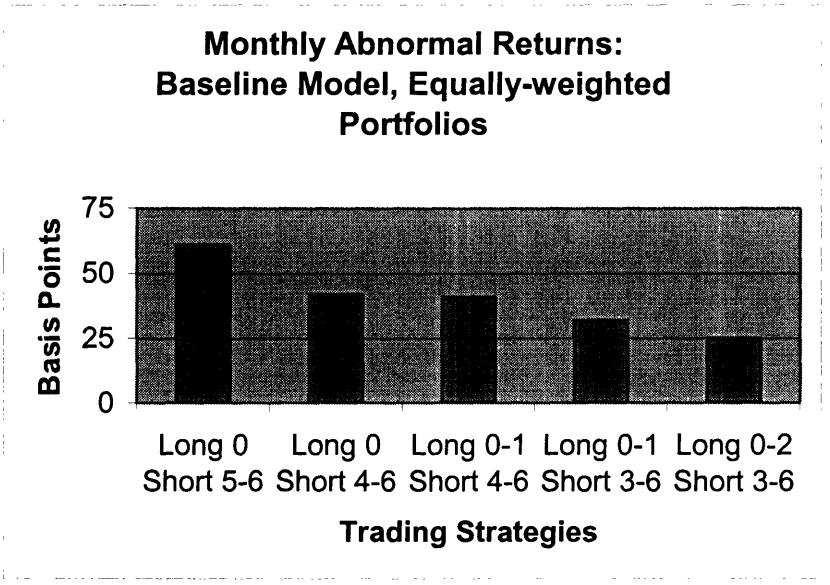
Monthly abnormal returns were calculated using both value-weighted portfolios and equally-weighted portfolios. These hedging portfolios were updated as new information became publicly available concerning the corporate governance provisions firms had. September 1990 is the starting date of the sample period as this was the month that the first IRRC volume was published and became publicly available. Firm membership in portfolios was adjusted on July 1993, July 1995, February 1998, November 1999 and February 2002 as these are the dates when updated IRRC volumes became publicly available.

Table XIII displays the abnormal return results for the 1990s controlling for the Carhart four factors (the baseline model). These results, regardless of whether one looks at equally-weighted or value-weighted entrenchment index portfolios, are striking. During the 1990s, going long those firms with the lowest possible entrenchment score (index score of 0) and shorting the high entrenchment index portfolio (index scores of 5 and 6), would have generated a monthly abnormal return of 61 basis points with 1% significance when equal-weighted portfolios are used; and it would have yielded monthly abnormal returns of 116 basis points with 1% significance when value-weighted portfolios are used. On an annual compounded basis, these strategies would have produced an abnormal return of 7.4% when equally-weighted portfolios are used and 14.8% when value-weighted portfolios are used.[8]

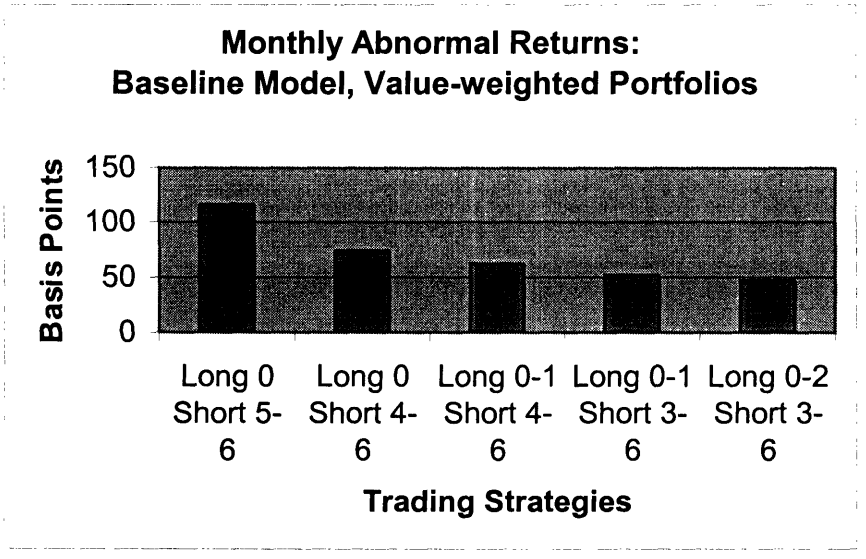
There is another interesting pattern that emerges from the baseline model results in Table XIII. The abnormal returns are all positive with statistical significance at the 1% level but progressively decline, whether equally-weighted or value-weighted portfolios are used in the trading strategy, as one includes more and more firms in

[8] These figures are based on compounding the monthly return over the year. Without compounding, the annual abnormal returns would be approximately 7.2% for a strategy based on equally-weighted portfolios and 13.9% for a strategy based on value-weighted portfolios.

the middle of the entrenchment index distribution. This monotonic decline in abnormal returns as the trading strategies include more firms in the middle of the distribution (with the first trading strategy on the far left being long index level 0-short index levels 5-6, then long 0- short 4-6, long 0-1-short 4-6, long 0-1- short 3-6, and finally long 0-2, short 3-6) is illustrated below for equally-weighted portfolios.



The same pattern of declining abnormal returns as firms in the middle of the entrenchment index are added to the long and short positions emerges (with the first trading strategy on the far left again being long 0-short 5-6, then long 0-short 4-6, long 0-1-short 4-6, long 0-1-short 3-6, and finally long 0-2-short 3-6) when value-weighted portfolios are used. This progression is illustrated below.



This monotonic decline in abnormal returns is to be expected if stock returns are negatively correlated with the degree to which managers are entrenched as captured by the entrenchment index.

3. Industry-adjusted Returns

There is, of course, always the possibility that a firm's corporate governance provisions merely reflect the industry in which the firm happens to operate. That is, it might be that low entrenchment levels were more common in industries that happened to perform well in terms of returns during the 1990s, and that the above findings of abnormal returns were driven by industry association. We therefore control for industry effects on stock returns in the way used by Gompers-Ishii-Metrick (2003)..

In particular, we classified all the firms in our dataset into one of the forty-eight Fama-French (1997) industry classifications, and we then calculated industry-adjusted monthly returns by first subtracting from each firm's monthly stock return the median monthly industry return for the Fama-French industry in which the firm operates. Monthly abnormal industry-adjusted returns on a trading strategy were then calculated by regressing the industry-adjusted returns associated with this strategy (going long firms with a particular entrenchment index score and, simultaneously, shorting other firms with a higher entrenchment index score) on the three Fama-French factors (Fama and French 1993) and a momentum factor (Carhart 1997). The industry-adjusted monthly abnormal returns were calculated for the same trading strategies analyzed in the baseline model. The results are also reported in Table XIII.

As the table indicates, all the long-short portfolios continue to generate positive abnormal returns that are all statistically significant at the 1% level. Also, once again, as one adds firms with index scores in the middle of the distribution to the long and short portfolios, the industry-adjusted monthly abnormal returns monotonically decrease. Finally, the industry-adjusted return estimates are approximately the same as those estimated without adjusting for industry. In short, the abnormal return results generated using the baseline model do not appear to be driven by industry effects.

4. Controlling for other governance provisions

One potential issue with the preceding analysis is the fact that the entrenchment index is correlated with other corporate governance provisions covered by the IRRC. Recall that the correlation between the entrenchment index and the other provisions index is about 0.3-0.35 during the period of our study. This makes it desirable to examine whether the results associating higher abnormal returns with lower entrenchment index scores are due to a correlation between returns and the other provisions index.

To address this issue, we calculate the results of a new set of trading strategies that seek to control for the provisions in the other provisions index. We wish to test whether, within pools of firms that have similar levels of the other provisions index, going long on low entrenchment companies and short on high entrenchment companies continues to produce positive abnormal returns.

Specifically, we start by dividing all firms into four buckets based on their other provisions index (O index) score. The four buckets were created so as to contain, to the extent possible, equal numbers of observations. The four buckets of firms consist of firms with low O index scores (index score of 5 or less); firms with medium-low O index scores (index score of 6); firms with medium-high O index scores (index scores of 7 and 8); and firms with high O index scores (index scores of 9 or more). In addition, we used several different divisions of the O index into buckets and found that using them does not affect the results.

With these O buckets in place, we were able to take into account the O distribution, as captured by the four buckets, when calculating abnormal returns associated with going long firms with low entrenchment index scores and short high entrenchment index firms.[9] When considering a trading strategy of going long firms with a given low entrenchment index score level and short firms with a given high entrenchment index score level, we would for each O index bucket create positions (either equally-weighted or value-weighted) consisting of going long all the firms with the given low entrenchment level and short all the firms with the given high entrenchment level in that O index bucket. After doing this, we then created an overall long-short portfolio consisting of an equally-weighted position in each of the

[9] It is impossible to do an exact O index distribution given a lack of sufficient firm observations across the entrenchment index to replicate the O index distribution.

four long and short positions created for the four O index buckets. As before, we then regressed the return associated with this long-short portfolio on the Carhart four-factor model, with the intercept term being interpreted as the monthly abnormal return associated with this particular trading strategy.

The basic idea behind constructing portfolios in this way is to ensure that, in constructing our long-short portfolios, the firms purchased and shorted are different in their entrenchment index scores while still being roughly similar in their O index scores. The method is analytically similar to the way in which the Fama-French book-to-market and firm size factors are calculated (see Fama and French 1993) as well as the Carhart momentum factor construction (see Carhart 1997).

The same trading strategies analyzed earlier were used once again. The results, which are reported in Table XIII, indicate that relatively little changes after we control for correlation with the O index. The abnormal returns remain positive and statistically significant at the 1% level, with one exception that is positive and significant at the 5% level. Moreover, the abnormal return estimates are of roughly similar magnitudes. For instance, the monthly abnormal return of going long firms in the bottom half of the distribution and short the top half is 23 basis points for equal-weighted portfolios and 50 basis points for value-weighted portfolios, both with 1% significance. Also, the same pattern of decreasing abnormal returns again emerges when looking at the effect of adding firms in the middle of the entrenchment index distribution to the long and short portfolios.

B. The Entrenchment Index and Returns for 1990-2003

Following the initial finding by Gompers, Ishii and Metrick (2003) of correlation between the GIM index and lower stock returns during the period 1990-1999, subsequent work did not find such correlation in a period extended forward to include the beginning of this decade (Core, Guay & Rusticus (2003), Cremers and Nair (2003)). The question therefore naturally arises whether the trading strategies analyzed above, going long firms with low entrenchment index scores and shorting firms with higher entrenchment index scores, would have yielded abnormal returns in the 1990-2003 period.

Turning to this question, we calculated for the period 1990-2003 the abnormal returns for different trading strategies using the Carhart four factors (the baseline

model), the industry-adjusted model, and the O-Bucket adjusted model. The results are summarized in Table XIV.

As Table XIV indicates, all the trading strategies, going long on low entrenchment firms and short on high entrenchment firms, continue to produce positive abnormal returns that are large and statistically significant at the 1% level. Furthermore, for both the equal-weighted and value-weighted portfolios, abnormal returns on trading strategies largely continue to decline monotonically as firms in the middle of the entrenchment index are added to the long and short portfolios. This overall pattern emerges in the baseline model, the industry-adjusted model and the O-bucket adjusted model.

In terms of the magnitude of the abnormal returns, the results for the period 1990-2003 are roughly similar to the results for the period 1990-1999 when the trading strategies use equally-weighted portfolios. For example, going long entrenchment index 0 and short index 5-6, would have yielded 61 basis points during 1990-1999 and 60 basis points during 1990-2003 using the baseline four-factor model; would have yielded 60 basis points during 1990-1999 and 66 basis points during 1990-2003 using the industry-adjusted model; and would have yielded 73 basis points during 1990-1999 and 68 basis points during 1990-2003 using the O-bucket-adjusted model. Similarly, when going long firms with entrenchment index scores of 2 or less and shoring the firms with index 3 or more, moving from 1990-1999 to 1990-2003 would have increased the monthly abnormal return by 2 basis points (to 27 basis points) under the baseline model; by 8 basis points (to 34 basis points) under the industry-adjusted model; and 1 basis point (to 24 basis points) under the O-bucket-adjusted model.

For trading strategies using value-weighted portfolios, the abnormal returns for the 1990-2003 period are significantly smaller than the corresponding trading profits for the 1990-2003 period. The trading profits using value-weighted portfolios in the 1990-2003, however, continue to be quite large in magnitude and, in particular, higher than the abnormal return on the corresponding strategies using equally-weighted portfolios during either the 1990-1999 or 1990-2003 period. For example, during 1990-2003, using value-weightings, going long entrenchment index 0 firms and shorting index 5-6 firms would have yielded a monthly positive abnormal return of 84 basis points under the baseline model; 94 basis points under the industry-adjusted model; and 81 basis points under the O-bucket-adjusted model. In contrast,

using equal-weightings, going long index 0 firms and shorting index 5-6 firms during 1990-1999 would have yielded only a monthly positive abnormal return of 61 basis points under the baseline model (or 60 basis points if the period were extended to 2003); 60 basis points under the industry-adjusted model (or 66 if the period were extended to 2003); and 73 basis points under the O-bucket-adjusted model (or 68 if the period were extended to 2003).

C. Stock Returns and the Other Provisions Index

We have found that, even controlling for the other provisions index, the entrenchment index was correlated with stock returns during the period we study. There is still the possibility, however, that the other provisions index was also correlated, controlling for the entrenchment index level, with stock returns. In other words, it is possible to flip the inquiry and ask whether the O index, the IRRC corporate governance provisions not reflected in the entrenchment index, has explanatory power for stock returns.

Accordingly, we calculated the abnormal returns associated with firms' O index scores, controlling for the entrenchment index distribution as captured by different entrenchment index buckets. To this end, we created six entrenchment index buckets, each consisting of all the firms in a given level of the index from 0 to 5, with the small number of firms with entrenchment index 6 scores added to the bucket with entrenchment index 5 firms. Following the methodology described earlier, we would for each entrenchment index bucket create positions (either equally-weighted or value-weighted) consisting of going long all the firms with a given low O index score and short all the firms with a given high O index score in that entrenchment level bucket. After doing this, we then created an overall long-short portfolio consisting of an equally-weighted position in each of the six long and short positions created for the six entrenchment index buckets. As always, we regressed the return associated with this long-short portfolio on the Carhart four-factor model, with the intercept term being interpreted as the monthly abnormal return associated with this particular trading strategy.

We did the calculations both for the 1990-1999 period and for the 1990-2003 period. The long-short portfolios in O index positions were based on the division of

firms into four O index buckets: firms with O index scores between 0 and 5; firms with O index scores of 6; firms with O index scores of 7 or 8; and firms with O index scores of 9 and more. Table XV contains the results of this analysis.

Out of the sixteen trading strategies analyzed, consisting of going long firms with low O index levels and short firms with high O index levels, none generated a statistically significant abnormal returns, even at the 10% level. Indeed, many of the t statistics indicate p values in the range of 80%. In addition to the lack of statistical significance, the coefficients are sometimes negative rather than positive and always small in magnitude, never exceeding .17. These results are consistent with the view that the O index has little residual explanatory power for returns once the entrenchment index is taken into account.

VI. Concluding Remarks

A substantial literature has attempted to identify over the past two decades which corporate arrangements and structures are correlated with higher shareholder value. We have sought in this paper to contribute to this literature by identifying which provisions, among the set of 24 IRRC provisions, are negatively correlated with firm performance. We have identified six entrenching provisions that are negatively correlated with firm value, as measured by Tobin's Q, as well as with stock returns during the 1990-2003 period. We have also found that these provisions fully drive the findings documented by prior research that the IRRC provision in the aggregate are correlated with Tobin' Q as well as returns during the 1990s.

Our results contribute to our understanding of the relationship between governance and firm value, and provide a basis for future work, in several ways. The six provisions in the entrenchment index are the ones to which researchers, investors, governance advisers, and policymakers interested in improving corporate governance should pay more attention. Knowing which provisions matter also provides a useful starting point for an inquiry into the source of the correlation between the IRRC provisions in the aggregate and firm value.

One important question that remains for future work concerns causation. We present suggestive evidence that the entrenching provisions are, in the aggregate, helping to cause lower firm valuation. But more work needs to be done. Once the key provisions responsible for the correlation with firm value are known, it is

possible to examine whether the answers to these questions vary among the provisions in the entrenchment index. Our conjecture is that the constitutional limitations on shareholder power do bring about, and not merely reflect, lower firm value.[10] In contrast, our conjecture is that the correlation that poison pills and golden parachutes have with lower firm value at least partly reflects the greater tendency of managers of firms with lower firm value to adopt takeover readiness provisions. We

Our work provides a measure of good corporate governance that future research work can use. Because eighteen of the twenty-four IRRC provisions appear not to matter for firm performance, an index that is based on all the IRRC provisions provides a "noisy" measure of the governance elements that are correlated with firm performance. By focusing only on the key provisions that matter, and excluding the noise that comes from counting provisions that do not, our entrenchment index provides an improved measure of good governance that can be used in future research.

Looking beyond the set of IRRC provisions, our analysis cautions against the "kitchen-sink" approach of building ever-larger indexes of governance measures. As we noted in the introduction, shareholder advisory firms, including industry leader ISS, have put forward indexes of good corporate governance based on a massive number of provisions, and the development and use of these indexes has put pressure on firms to adjust their arrangements in ways that would improve their index scores. As this paper highlights, in any large set of governance provisions, many are likely not to matter or to be an endogenous product of others. Compared with a governance ratings scheme based on the key provisions that matter, a governance rating system based on a much large set can push firms in directions that are counter-productive or at least wasteful, and provides a noisier measure of governance quality. In short, adding more provisions to an index is not harmless; in this area, less can be preferable to more. Shareholders and their advisers might do well to focus on those corporate governance provisions that really matter for firm value.

[10] Bebchuk and Cohen (2003) provide some suggestive evidence that the correlation between staggered boards and reduced firm value at least in part reflects staggered boards bringing about lower value rather than merely reflecting it.

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TABLE I: INCIDENCE OF CORPORATE GOVERNANCE PROVISIONS

	YEAR					
	1990	**1993**	**1995**	**1998**	**2000**	**2002**
Entrenchment Index Provisions:						
Staggered Board	59.2%	60.5%	61.8%	59.5%	60.5%	61.9%
Limits to Amend Bylaws	14.5%	16.2%	16.1%	18.2%	20.0%	23.2%
Limits to Amend Charter	3.3%	3.4%	3.1%	3.0%	3.3%	2.5%
Supermajority	39.0%	39.5%	38.4%	34.1%	34.1%	32.3%
Golden Parachutes	53.3%	55.7%	55.2%	56.9%	67.4%	70.2%
Poison Pill	54.4%	57.6%	56.6%	55.4%	59.9%	59.0%
All Other Provisions:						
Limits to Special Meeting	24.8%	30.0%	32.0%	34.8%	38.3%	50.2%
Limits to Written Consent	24.8%	29.3%	32.1%	33.3%	36.2%	46.4%
No Cumulative Vote	81.6%	83.6%	85.0%	87.8%	89.0%	90.4%
No Secret Ballot	97.1%	90.5%	87.8%	90.4%	89.1%	88.8%
Director Indemnification	40.8%	39.5%	38.5%	24.5%	23.6%	19.1%
Director Indemnification Contracts	16.6%	15.2%	12.6%	11.2%	9.1%	8.1%
Director Liability	72.7%	69.2%	65.5%	47.2%	43.1%	33.9%
Compensation Plans	45.3%	66.1%	72.8%	63.2%	72.6%	74.0%
Severance Agreements	13.1%	5.5%	10.2%	11.2%	9.2%	6.1%
Unequal Vote	2.4%	2.0%	1.9%	1.7%	1.5%	1.6%
Blank Check	76.7%	80.1%	85.9%	88.0%	89.4%	90.8%
Fair Price	58.0%	59.1%	57.6%	49.4%	48.5%	44.0%
Cash Out Law	4.1%	3.7%	3.6%	3.1%	2.7%	2.5%
Director Duties	10.4%	11.1%	10.9%	9.9%	10.2%	10.8%
Business Combination Law	84.1%	87.5%	87.4%	88.4%	89.0%	89.1%
Anti-green Mail	19.7%	20.8%	20.1%	17.1%	15.8%	15.0%
Pension Parachutes	4.0%	5.3%	4.0%	2.2%	1.5%	1.0%
Silver Parachutes	4.1%	4.9%	3.5%	2.4%	2.0%	1.7%

TABLE II: INCIDENCE OF THE ENTRENCHMENT INDEX

Entrenchment index	1990	1993	1995	1998	2000	2002
0	13.0%	11.0%	11.0%	10.7%	7.9%	7.3%
1	18.2%	17.3%	17.6%	19.0%	18.0%	15.4%
2	24.3%	25.0%	25.4%	25.9%	24.0%	26.8%
3	25.4%	25.7%	25.3%	25.1%	27.6%	27.2%
4	14.7%	16.3%	16.7%	15.9%	18.2%	18.3%
5	3.7%	4.3%	3.8%	2.8%	3.8%	4.6%
6	0.7%	0.4%	0.2%	0.6%	0.5%	0.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE III: ENTRENCHMENT INDEX LEVELS OF FIRMS IN DEMOCRACY AND DICTATORSHIP PORTFOLIOS

	Democracy portfolio	Dictatorship portfolio
Average Entrenchment Index	0.58	4.10
Percentage with E=0	53.0%	0.0%
Percentage with E=1	36.1%	1.1%
Percentage with E=2	10.9%	0.0%
Percentage with E=3	0.0%	15.0%
Percentage with E=4	0.0%	58.1%
Percentage with E=5-6	0.0%	25.8%
	100.0%	100.0%

TABLE IV: CORRELATION MATRIX OF ENTRENCHING PROVISIONS: 1990-2002

	Classified Board	Golden Parachutes	Limits to Amend Bylaw	Limits to Amend Charter	Supermajority	Poison Pill
Classified Board	1					
Golden Parachutes	.167	1				
Limits to Amend Bylaw	.202	.063	1			
Limits to Amend Charter	.093	.018	.24	1		
Supermajority	.176	.037	.047	.092	1	
Poison Pill	.225	.31	.079	.018	.062	1

TABLE V: ENTRENCHMENT INDEX LEVELS OF DIFFERENT TYPES OF FIRMS

Firms in Year 2002	Mean E-Level	Standard Deviation
S&P 500	2.58	1.29
Not in S&P 500	2.46	1.30
Went Public in 1990s	2.30	1.28
Went Public in 1980s	2.35	1.29
Went Public Before 1980	2.82	1.27

TABLE VI: INCIDENCE OF OTHER PROVISIONS INDEX

Index of Other Provisions	1990	1993	1995	1998	2000	2002	Average E-Index: Year 1990	Average E-Index: Year 2002
1	0.15%	0.00%	0.00%	0.00%	0.06%	0.00%	1.50	1.11
2	1.41%	0.68%	0.66%	0.71%	0.52%	0.55%	0.89	1.41
3	3.72%	3.68%	2.41%	3.12%	2.14%	1.64%	1.42	1.61
4	7.58%	6.38%	5.41%	10.88%	8.31%	7.71%	1.67	2.10
5	14.94%	12.91%	13.38%	17.82%	17.85%	15.79%	1.75	2.24
6	19.03%	17.87%	17.98%	17.24%	18.23%	21.86%	2.09	2.72
7	16.36%	16.97%	16.81%	16.53%	19.92%	22.16%	2.36	2.90
8	15.24%	17.49%	19.52%	14.88%	14.99%	13.60%	2.52	2.86
9	10.26%	12.01%	11.77%	9.59%	9.28%	8.50%	2.78	3.33
10	7.21%	6.76%	6.94%	5.71%	5.78%	5.04%	3.01	3.44
11	3.35%	4.28%	4.24%	2.71%	2.14%	2.37%	3.04	3.38
12	0.45%	0.75%	0.66%	0.65%	0.65%	0.49%	2.17	3.40
13	0.30%	0.23%	0.22%	0.18%	0.13%	0.30%	2.25	1.11
Average							2.24	2.49
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		

TABLE VII: THE ENTRENCHMENT INDEX AND FIRM VALUE

This table reports pooled OLS regressions of log (industry-adjusted Tobin's q) on various controls and two specifications of the entrenchment index. Tobin's q is the ratio of the market value of assets to the book value of assets, where the market value of assets is computed as book value of assets plus the market value of common stock less the sum of book value of common stock and balance sheet deferred taxes. Industry-adjusted Tobin's q is equal to Tobin's q minus the median Tobin's q in the industry, where industry is defined by two-digit SIC code. Entrenchment index i (i=1, 2, 3, 4, and 5-6) is equal to 1 if the firm has an entrenchment level i and 0 otherwise. The other provisions index is equal to the GIM index (Gompers-Ishii-Metrick (2003)) minus the entrenchment index. Insider Ownership is equal to the fraction of shares held by officers and director. ROA is the ratio of net income to assets. CAPEX/assets is the ratio of capital expenditures to assets. R&D per Sales is the ratio of research and development expenditures to total sales. Leverage is the ratio of long-term debt plus debt due in one year to assets. Year dummies and a dummy for missing R&D data are included in all regressions, but their coefficients (as well as the constant) are omitted. Columns 1 and 2 provide OLS estimates, which are White (1980) robust, and columns 3 and 4 provide the results of regressions with fixed firm effects. Robust standards errors appear below the coefficient estimate. Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Variable	(1)	(2)	(3)	(4)
Entrenchment Index E	-0.044***		-0.020***	
	0.004		0.007	
Entrenchment Index 1		-0.092***		-0.056**
		0.023		0.022
Entrenchment Index 2		-0.146***		-0.065***
		0.022		0.025
Entrenchment Index 3		-0.155***		-0.077***
		0.022		0.029
Entrenchment Index 4		-0.206**		-0.104***
		0.023		0.031
Entrenchment Index 5-6		-0.282***		-0.107***
		0.027		0.040
Other Provisions Index	0.010***	0.010***	0.002	0.002
	0.003	0.003	0.006	0.006
Log(Assets)	0.015***	0.015***	-0.119***	-0.118***
	0.004	0.004	0.014	0.014
Log(Company Age)	-0.048***	-0.047***	-0.026	-0.026
	0.008	0.008	0.031	0.031
Delaware Incorporation	-0.03***	-0.028***	0.004	0.008
	0.01	0.01	0.04	0.04
Insider Ownership	0.001	0.001	0.005***	0.005**
	0.001	0.001	0.002	0.002
Insider Ownership Square	-0.00003	-0.0003	-0.0001*	-0.0001*
	0	0	0	0
ROA	0.008	0.008	0.019	0.019
	0.009	0.009	0.015	0.015
CAPEX / Assets	0.994***	1.00***	0.868***	0.869***
	0.089	0.09	0.120	0.120
Leverage	-0.544***	-0.553***	-0.426***	-0.427***
	0.046	0.046	0.047	0.047
R&D per Sales	0.002**	0.001*	-0.001**	-0.001**
	0.001	0.001	0.001	0.001

TABLE VIII

THE ENTRENCHMENT INDEX AND FIRM VALUE: ANNUAL REGRESSIONS

This table reports mean and median annual OLS regressions of log of industry-adjusted Q and industry-adjusted Q on the entrenchment index and various controls. Industry-adjusted Tobin's q is defined in the same way as in table VII. The independent variables are the same as in the regressions reported in table VII, but the table reports only the coefficients of the entrenchment index E and the other provisions index. Fama-Macbeth coefficients are calculated and reported in the last row. Columns (1) and Column (3) provide OLS estimates that are White (1980) robust, and Column (2) provides the results of median regressions. Robust standards errors appear immediately below the coefficient estimate. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	(1) Log (Industry-adjusted Q) Mean regressions		(2) Log (Industry-adjusted Q) Median Regressions		(3) Industry-adjusted Q Mean Regressions	
Year	Entrenchment Index	Other Provisions Index	Entrenchment Index	Other Provisions Index	Entrenchment Index	Other Provisions Index
1992	-0.011	0.003	-0.009	-0.001	-0.028	-0.002
	0.009	0.006	0.016	0.011	0.021	0.014
1993	-0.018*	-0.003	-0.022**	-0.007	-0.058**	-0.011
	0.011	0.007	0.010	0.006	0.027	0.016
1994	-0.018**	0.004	-0.037***	0.001	-0.052**	0.010
	0.009	0.006	0.010	0.007	0.020	0.014
1995	-0.016	0.0013	-0.023	-0.005	-0.067**	0.008
	0.011	0.008	0.015	0.011	0.032	0.026
1996	-0.024**	0.011	-0.025*	-0.002	-0.074**	0.029
	0.01	0.007	0.015	0.011	0.029	0.025
1997	-0.014*	0.005	-0.029*	0.017	-0.058**	0.017
	0.008	0.007	0.016	0.011	0.027	0.022
1998	-0.064***	0.022**	-0.058***	0.000	-0.209***	0.066**
	0.014	0.009	0.021	0.014	0.053	0.033
1999	-0.068***	0.005	-0.065***	0.003	-0.327***	0.015
	0.015	0.01	0.016	0.011	0.077	0.054
2000	-0.03**	0.003	-0.066***	-0.003	-0.089**	-0.010
	0.013	0.009	0.020	0.014	0.041	0.028
2001	-0.017*	0.006	-0.024*	0.006	-0.044	0.016
	0.01	0.007	0.014	0.010	0.027	0.019
2002	-0.05***	0.013*	-0.057***	0.000	-0.119***	0.020
	0.013	0.007	0.014	0.009	0.028	0.015
Fama-Macbeth	-0.03***	0.006***	-0.038***	0.001***	-0.102***	0.014***
	0.000	0.000	0.000	0.000	0.001	0.000

TABLE IX

THE ENTRENCHMENT INDEX PROVISIONS AND FIRM VALUE

This table reports the results of 24 pooled OLS regressions of log (industry-adjusted Tobin's q) on provisions in the entrenchment index and various controls. Each column displays the results of four different regressions investigating a given provision, and it displays only the coefficient of the provision of interest in these four regressions. The independent variables other than governance provisions are the same as in the regressions of table VII. OLS estimates are White (1980) robust. Robust standards errors appear immediately below the coefficient estimate. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	Staggered Board	Golden Parachutes	Limits to Amend Bylaws	Limits to Amend Charter	Supermajority	Poison Pill
Coefficient in a regression with (i) the provision, and (ii) the GIM index minus the provision.	-0.035***	-0.024**	-0.079***	-0.048***	-0.079***	-0.061***
	0.011	0.012	0.022	0.01	0.0101	0.011
Coefficient in a regression with (i) the provision, (ii) the Entrenchment index minus the provision, and (iii) the Index of All Other Provisions.	-0.051***	-0.037***	-0.047***	-0.044***	-0.045***	-0.042***
	0.005	0.005	0.004	0.004	0.005	0.005
Coefficient in a regression with (i) the provision, (ii) dummies for each of the other five provisions in the Entrenchment Index, and (iii) the Index of All Other Provisions.	-0.026**	-0.025**	-0.067***	-0.044***	-0.07***	-0.046***
	0.011	0.012	0.021	0.01	0.011	0.011
Coefficient in a regression with (i) the provision, (ii) dummies for each of the other twenty-three IRRC provisions.	-0.030***	-0.026**	-0.068***	-0.043***	-0.071***	-0.048***
	0.011	0.012	0.022	0.01	0.011	0.011

TABLE X
INSIDE THE OTHER PROVISIONS INDEX

This table reports the results of seventy-two pooled OLS regressions of log of industry-adjusted Tobin's q on a given provision in the other provisions index and various controls. Industry-adjusted Tobin's Q is defined in the same way as in table VII. For each provision i, four types of regressions are run: (a) A regression in which the independent corporate governance variable are the provision i, and a variable equal to the GIM governance provisions index minus the provision i; (b) A regression in which the independent corporate governance variables are the provision i, a variable equal to the other provision index minus the provision i, and the entrenchment index; (c) A regression in which the independent corporate governance variables are the provision i, dummies for each of the other seventeen provisions in the other provisions index, and the entrenchment index; and (d) A regression in which the independent corporate governance variables are the provision i and dummies for each of the other twenty-three IRRC provisions. The independent non-governance variables are the same as in the regressions reported in table VII. We display only the coefficient on the provision i. OLS estimates are White (1980) robust. Robust standards errors appear immediately below the coefficient estimate. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	Blank Check	Limit to Meetings	Limits to Consent	Compensation Plans	Director Indemnification K	Director Indemnification
Regression Type (a)	0.02	0.025**	0.001**	-0.005	0.031**	0.003
	0.014	0.011	0.012	0.011	0.013	0.01
Regression Type (b)	0.025*	0.031***	0.002	0.006	0.031**	-0.011
	0.014	0.011	0.012	0.011	0.013	0.01
Regression Type (c)	0.021	0.037***	-0.001	0.008	0.036***	-0.011
	0.014	0.012	0.014	0.011	0.013	0.01
Regression Type (d)	0.021	0.034***	-0.014	0.013	0.035***	-0.013
	0.014	0.012	0.013	0.012	0.013	0.01

	No Secret Ballot	Unequal Vote	Anti- Greenmail	Director Duties	Fair Price	Pension Parachutes
Regression Type (a)	0.028*	-0.048	-0.008	-0.004	0.038***	-0.049**
	0.014	0.032	0.013	0.015	0.012	0.021
Regression Type (b)	0.034**	-0.04	-0.001	0.005	0.032***	-0.037*
	0.014	0.032	0.012	0.015	0.012	0.021
Regression Type (c)	0.032**	-0.03	-0.012	0.01	0.03**	-0.035*
	0.015	0.033	0.013	0.015	0.012	0.021
Regression Type (d)	0.035**	-0.035	-0.009	0.004	0.027***	-0.031
	0.015	0.033	0.013	0.015	0.013	0.021

	No Cumulative Vote	Director Liability	Business Combination	Silver Parachutes	Cash-Out	Severance Agreements
Regression Type (a)	-.017	.003	0.021**	0.017	0.026	.038**
	0.013	0.011	0.016	0.021	0.029	0.0201
Regression Type (b)	-.005	-0.013	.024	0.015	-0.000	.022
	0.012	0.011	0.016	0.022	0.028	0.02
Regression Type (c)	-.007	-0.006	0.025	0.021	-.003	.021
	0.013	0.011	0.017	0.022	0.03	0.02
Regression Type (d)	-.005	-0.004	.026	0.019	0.001	.01
	0.012	0.011	0.017	0.022	0.013	.021

TABLE XI: THE ENTRENCHMENT INDEX AND FIRM VALUE 1998-2002

This table reports pooled OLS regressions of log (industry-adjusted Tobin's q) for 1998-2002 on various controls and two specifications of the entrenchment index. The calculation of industry-adjusted Tobin's Q is described in Table VII. In addition to the controls used earlier in the Table VI regressions, columns 1 and 3 control for firms' 1990 entrenchment index scores, while columns 2 and 4 control for the different levels of firms' 1990 entrenchment index scores. Moreover, columns 3 and 4 control for the log of firms' industry-adjusted Tobin's Q as of 1990. Year dummies and a dummy for missing R&D data are included in all regressions, but their coefficients (as well as the constant) are omitted. White (1980) robust standards errors appear below the coefficient estimate. Significance levels are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Variable	(1)	(2)	(3)	(4)
Entrenchment Index E 90	-0.024***		-0.017***	
	0.005		0.005	
Entrenchment Index 1 90		-0.045		-0.036
		0.031		0.03
Entrenchment Index 2 90		-0.073**		-0.075***
		0.029		0.027
Entrenchment Index 3 90		-0.071**		-0.054**
		0.029		0.028
Entrenchment Index 4 90		-0.122***		-0.092***
		0.03		0.028
Entrenchment Index 5-6 90		-0.105***		-0.078**
		0.039		0.036
Other Provisions Index	0.002	0.002	0.002	0.002
	0.004	0.004	0.004	0.004
Log (Industry-Adjusted Q) 90			.289***	.291***
			.025	.025
Log(Assets)	0.049***	0.049	0.045***	0.044***
	0.005	0.005	0.005	0.005
Log(Company Age)	-0.036**	-0.032*	-0.016	-0.01
	0.017	0.017	0.018	0.017
Delaware Incorporation	-0.021	-0.02	-.017	-.015
	0.015	0.015	0.014	0.014
Insider Ownership	-0.004*	0.005*	-0.003	-.003
	0.003	0.003	0.002	0.002
Insider Ownership Square	0	0	0	0
	0	0	0	0
ROA	2.859***	2.859***	2.457***	2.456***
	0.134	0.134	0.147	0.147
CAPEX / Assets	0.173***	.729***	0.847***	0.87***
	0.167	0.031	0.16	0.162
Leverage	-0.403***	-0.405***	-0.31***	0.312***
	0.058	0.058	0.059	0.059
R&D per Sales	1.218***	1.28***	0.909***	0.934***
	0.242	0.242	0.242	0.242

TABLE XII
SUMMARY STATISTICS ON ENTRENCHMENT INDEX STOCK RETURNS

This table documents the average monthly return of stocks of portfolios of stocks consisting of the same entrenchment index scores (0, 1, 2, 3, 4 or 5-6) for the period of September 1990 – December 1999. Portfolios are constructed using equal weights of stocks and weighting positions in stocks by firms' common stock market capitalization. Stocks entrenchment scores were adjusted when updated information on firms' corporate governance provisions became available: July, 1993; July, 1995; and February 1998.

	Equal-Weight	Value-Weight
Entrenchment Index Level		
Index 5-6	1.26%	1.51%
Index 4	1.40%	1.85%
Index 3	1.46%	1.93%
Index 2	1.59%	2.26%
Index 1	1.72%	2.33%
Index 0	1.74%	2.45%

TABLE XIII

MONTHLY ABNORMAL RETURNS ASSOCIATED WITH DIFFERENT TRADING STRATEGIES: THE 1990S

This table documents the monthly abnormal returns, and their associated robust standard errors in parenthesis, associated with different trading strategies for the period of September 1990 - December 1999. The monthly abnormal returns where calculated using three different methods. In the baseline model, abnormal returns were calculated by regressing the return associated with a particular trading strategy on the three Fama-French (Fama & French 1993) – the HML factor which captures book-to-market effects, the SMB factor which captures firm size effects and the value-weighted market return in excess of the risk-free rate for further explanation) – and a momentum factor which was calculated using the procedures described in Carhart (1997). The trading strategies analyzed consist of going long a portfolio of stocks with a certain entrenchment index score and, simultaneously, shorting another portfolio of stocks with a higher entrenchment score. These long and short portfolios were adjusted when updated information on firms' corporate governance provisions became available: July, 1993; July, 1995; and February 1998. The long and short portfolios of stocks were constructed using equal weightings of each stock (equal-weight) and by weighting the holding of a stock in the portfolio by its common stock market capitalization (value-weight). With industry-adjusted returns, the monthly abnormal returns were calculated by first subtracting from each firm's monthly stock return the median industry return for the industry in which the firm operates. The Fama-French 48 industry classification (Fama & French 1997) was used in classifying firms across industries. Monthly abnormal returns were then calculated by regressing the industry-adjusted returns associated with a trading strategy on the four Carhart factors used in the baseline model. Finally, with the O-Bucket-Adjusted returns, the long and short portfolios were constructed by first dividing all stocks in the same entrenchment index category (0, 0-1, 0-1-2, 3-4-5-6, 4-5-6 & 5-6) into four other provisions (O) index buckets. The four buckets consist of firms with O scores of 0-5, 6, 7-8, and 9-13. A portfolio in a certain Entrenchment Index category is then constructed by calculating the return of stocks with the desired Entrenchment Index score equally-weighted across the four O buckets. The O Bucket-adjusted returns associated with a particular trading strategy was regressed, as always, on the four Carhart factors. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	Baseline Model		Industry-adjusted		O-Bucket-Adjusted	
Long – Short Portfolios	Equal-Weight	Value-Weight	Equal-Weight	Value-Weight	Equal-Weight	Value-Weight
Index 0 – Index 5-6	.61***	1.16***	.60***	1.01***	.73***	1.16***
	(.200)	(.284)	(.182)	(.301)	(.269)	(.298)
Index 0 – Index 4-5-6	.42***	.74***	.47***	.82***	.61***	.89***
	(.134)	(.191)	(.116)	(.198)	(.195)	(.210)
Index 0-1 – Index 4-5-6	.41***	.62***	.44***	.62***	.34**	.77***
	(.138)	(.153)	(.109)	(.154)	(.141)	(.180)
Index 0-1 – Index 3-4-5-6	.32***	.52***	.34***	.57***	.28***	.58***
	(.106)	(.141)	(.088)	(.130)	(.107)	(.161)
Index 0-1-2–Index 3-4-5-6	.25***	.47***	.26***	.51***	.23***	.50***
	(.079)	(.116)	(.067)	(.108)	(.071)	(.123)

TABLE XIV

MONTHLY ABNORMAL RETURNS ASSOCIATED WITH DIFFERENT TRADING STRATEGIES: 1990-2003

This table documents the monthly abnormal returns, and their associated robust standard errors in parenthesis, associated with different trading strategies for the period of September 1990 - December 2003. The abnormal returns were calculated in the same manner as in Table XIII : the baseline model, industry-adjusted returns, and O Bucket-adjusted returns. The long and short portfolios were adjusted when updated information on firms' corporate governance provisions became available: July, 1993; July, 1995; February 1998; November, 1999; and February 2002. The long and short portfolios of stocks were constructed using equal weightings of each stock (equal-weight) and by weighting the holding of a stock in the portfolio by its common stock market capitalization (value-weight). Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	Baseline Model		Industry-adjusted		O-Bucket-Adjusted	
Long – Short Portfolios	Equal-Weight	Value-Weight	Equal-Weight	Value-Weight	Equal-Weight	Value-Weight
Index 0 – Index 5-6	.60***	.84***	.66***	.94***	.68***	.81***
	(.185)	(.224)	(.156)	(.230)	(.220)	(.246)
Index 0 – Index 4-5-6	.39***	.57***	.48***	.67***	.50***	.60***
	(.145)	(.186)	(.125)	(.185)	(.169)	(.206)
Index 0-1 – Index 4-5-6	.42***	.52***	.52***	.53***	.35***	.58***
	(.133)	(.157)	(.114)	(.151)	(.130)	(.179)
Index 0-1 – Index 3-4-5-6	.37***	.41***	.43***	.46***	.34***	.43***
	(.107)	(.132)	(.090)	(.125)	(.100)	(.144)
Index 0-1-2–Index 3-4-5-6	.27***	.37***	.34***	.39***	.24***	.38***
	(.085)	(.117)	(.070)	(.110)	(.074)	(.121)

TABLE XV

MONTHLY ABNORMAL RETURNS ASSOCIATED WITH DIFFERENT TRADING STRATEGIES CONTROLLING FOR ENTRENCHMENT INDEX DISTRIBUTION

This table documents the monthly abnormal returns, and their associated t-statistics in parenthesis, associated with trading strategies controlling, as in Table XIII and XIV, for the three Fama-French factors (Fama & French 1993) and the Carhart (1997) momentum factor. Portfolios are constructed by first dividing all stocks in the same other provisions (O) category -- 0-5, 6, 7-8, or 9-13 -- into six entrenchment index categories. The six entrenchment index buckets are entrenchment index scores of 0, 1, 2, 3, 4 and 5-6. A portfolio in a certain O index category is then constructed by calculating the equally-weighted return of stocks with the desired O index category across the six Entrenchment buckets. Within each Entrenchment bucket, the equally-weighted and value-weighted return of stocks in the same O category were calculated. The monthly abnormal returns associated with going long and short various portfolios was calculated for both the period of September 1990 – December 1999 period and the longer period of September 1990 – December 2003. The long and short portfolios were adjusted when updated information on firms' corporate governance provisions became available: July, 1993; July, 1995; February 1998; November, 1999; and February 2002. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

	1990-1999		**1990-2003**	
	Equal-Weight	Value-Weight	Equal-Weight	Value-Weight
Long – Short Portfolios				
Index 0-5 - Index 9-13	.10	.13	.07	.05
	(.162)	(.180)	(.133)	(.146)
Index 0-5 – Index 7-8	-.024	.08	.03	.17
	(.143)	(.124)	(.124)	(.106)
Index 0-5 – Index 6	-.10	-.01	-.04	-.05
	(.148)	(.155)	(.136)	(.141)
Index 0-6 – Index 7-13	.10	.02	.07	.05
	(.107)	(.056)	(.096)	(.051)

MANDATED DISCLOSURE AND STOCK RETURNS: EVIDENCE FROM THE OVER-THE-COUNTER MARKET

I. INTRODUCTION

The organizing principle of U.S. securities regulation in the twentieth century is the belief that mandated disclosure of firm-specific information enables capital markets to function efficiently and in the interests of all investors (Securities Act of 1933; Exchange Act of 1934). The regulatory response to recent corporate scandals has been to focus once again on the presumed importance of mandatory disclosure (Sarbanes-Oxley Act of 2002). This regulatory stance, now widely emulated around the world, raises the fundamental question of the role mandated disclosure should play in capital market regulation. Given the importance of the topic, it is surprising how little empirical work there has been attempting to answer this question based on the actual effects of mandated disclosure on the capital markets.[11]

This paper studies the effect the 1964 extension of mandated disclosure requirements to the over-the-counter (OTC) market had on OTC firms. Starting in 1965, OTC firms were subject to the same disclosure requirements placed on exchange-listed firms. Besides the original Securities Acts, the Securities Act of 1933 and the Exchange Act of 1934, the extension of mandated disclosure to the OTC market marks the most fundamental change in the scope of mandated disclosure in the U.S. in the twentieth century. This imposition of mandated disclosure on non-exchange listed securities – the OTC market – has never been studied prior to this paper.

This study, using a unique database created for this study, documents two important effects that the extension of mandated disclosure to the OTC market had on OTC stocks. First, the volatility of stock returns declined substantially in the OTC market in the post-mandated disclosure period. This is consistent with the theoretical prediction that the effect of mandated disclosure should be to reduce volatility if mandated disclosure results in information reaching the market earlier

[11] Paul Healy and Krishna Palepu note that "empirical research on the regulation of disclosure is virtually non-existant." Healy & Palepu (2001).

than it would otherwise have been (West 1988; LeRoy and Porter 1981). This implies that stock price accuracy increased given the incorporation of information into a firm's stock price earlier in time. Second, the evidence is consistent with OTC stock prices experiencing a positive abnormal return at the time the market first learned in 1963 that mandated disclosure requirements were going to be extended to the OTC market.

The existing empirical work that has been done, most importantly the studies of the impact of the Securities Act of 1933 and the Exchange Act of 1934 on the capital markets (Stigler 1964; Benston 1973; Simon 1989), has been heavily relied upon by academics in making policy recommendations on the desirability of mandated disclosure (Romano 1998). Unfortunately, these studies suffer from the need to control for changing market conditions over the time period they study (notably the onset of the Great Depression). Moreover, these studies use measures which might not adequately capture the effect mandated disclosure has on how well the capital markets are functioning (Coffee 1984).

It is fair to say that a shortcoming of some of the most influential earlier empirical studies (Stigler 1964; Benston 1973; Simon 1989) has been the relative lack of theory informing the choice of statistical testing. While there are a handful of serviceable theoretical models, the theoretical justification for using particular tests has typically been informal. As a result of this theoretical gap, this paper will use as many of the proxies for changes in stock price accuracy identified in the literature as possible to test the robustness of any findings. In order to measure changes in stock price accuracy of the OTC market associated with mandatory disclosure, we employ several different proxies for stock price accuracy that have been developed in the financial econometric literature (Roll 1988; Simon 1989; Morck et al 2000; Durnev et al 2001a, Durnev et al 2001b).

This study has several advantages over the studies of the Securities Acts. First, and most importantly, exchange-listed companies form a natural control group as they were subject to the disclosure requirements of the Exchange Act of 1934 throughout the time period studied (1962-68). Second, the capital markets in the 1962-1968 period did not suffer a shock anywhere near as dramatic as that of the Great Depression. Third, there are theoretical reasons, with empirical backing, for believing that if there were to be effects caused by mandated disclosure on the capital markets, such effects would be most powerfully felt in the less-liquid, less-

followed OTC market (Simon 1989). In the OTC market, the private market sources of financial information are likely to be less extensive. In contrast, the New York Stock Exchange (NYSE) in the 1920s, the time period immediately prior to exchange-listed company mandated disclosure requirements, was a well-developed marketplace with deep liquidity and more extensive sources of private information.

Part II of this paper will provide a brief discussion of the existing empirical literature on mandated disclosure. Part III will then describe the imposition of mandated disclosure on the OTC market by the Securities Act Amendments of 1964. The database that was created to study the effect of mandated disclosure on the OTC market will be described in Part IV. Some summary statistics describing OTC firms pre- and post-mandated disclosure are provided in Part V.

Part VI then investigates the effect of mandated disclosure on the distribution of abnormal returns. Two findings emerge from this analysis. First, relative to the listed market, average OTC stock volatility fell substantially after the imposition of mandated disclosure. Second, in the post-mandated disclosure period, the OTC and listed markets behaved in a far more parallel manner than was the case in the pre-mandated disclosure period. A variety of statistical techniques are used to measure volatility, all of which support these two basic findings.

These findings are important because they are consistent with mandatory disclosure increasing stock price accuracy in the OTC market. The variance-bound literature indicates that lower volatility is consistent with increased stock price accuracy (West 1988; LeRoy and Porter 1981). Improved stock price accuracy can be socially beneficial if it results in an improvement in the allocation of capital or reduces the agency costs associated with the divergence of interests between controlling shareholders and minority shareholders or the divergence of interests between managers and dispersed shareholders (Fox 1999; Shleifer and Wolfenzon 2002). There is some empirical evidence suggesting that share price accuracy can affect the allocation of capital and agency costs (See, e.g., Durnev, Morck and Yeung 2004; Wurgler 2000; Fox 1999).

Part VII examines the effect of mandated disclosure on the degree to which stocks move together, i.e. stock return synchronicity. Cross-country empirical studies suggest that stock price synchronicity is inversely related to the informational content of security prices (Morck, Yeung and Yu 2000). The imposition of mandatory disclosure on the OTC market, however, is not associated with any

discernable change in the overall average stock return synchronicity in the OTC market. Given the evidence of decreased volatility, these results suggest that average stock return synchronicity measures, which appear to work well in the cross-country context, are an inappropriate proxy for stock price accuracy in this particular context. In this regard, it is worth bearing in mind that an important gap in the synchronicity literature, to date, has been the lack of any formal model theoretically linking stock price synchronicity with the informational content of security prices. At the same time, the results do indicate that in the post-mandated disclosure period, the OTC and listed markets behaved in a more parallel manner along the dimension of stock return synchronicity.

Finally, changes in average and median stock returns resulting from mandated disclosure are examined in Part VIII. The market's expectation that mandated disclosure requirements were going to be imposed is associated with positive abnormal returns. This occurred in 1963 when the SEC's recommendation that mandatory disclosure requirements be placed on the OTC market was publicly released. Focusing on the moment when the market anticipates that the law will impose mandatory disclosure is more accurate than simply comparing returns in the years before and after the legal change occurs. The reason is that any increase in stock market value associated with mandatory disclosure should be capitalized into stock prices at that moment (which is before the disclosure regime actually takes effect). Indeed, if one simply compares returns in the years before the 1964 Act is implemented to returns in the years after it was implemented, there is no increase in returns. This is similar to George Stigler's result that there was no change in returns for years before and after the imposition of the Securities Act of 1933 (Stigler 1964).

II. The Existing Empirical Literature

George Stigler's study marked the first attempt to study the empirical impact of the Securities Acts on the performance of the capital markets (Stigler 1964). Stigler examined two groups of new share issues: a pre-mandated disclosure group of new share issues (1923-28) and a post-mandated disclosure group of new share issues (1949-55). He found that the returns on securities post-mandated disclosure was the same as that of the pre-mandated disclosure group. Second, he found that the variance of the post-mandated disclosure group's stock returns fell by

approximately half. Stigler interpreted these findings as consistent with the view that mandated disclosure had no beneficial effect. Stigler attributed the decline in volatility to a reduction in the number of high-risk firms raising capital after the passage of the Securities Act of 1933.

In his influential 1973 study, Benston divided NYSE companies pre-1934 (pre-mandated disclosure) into two groups: 193 companies which he claimed did not disclose sales information and a second group of 314 companies which did disclose sales information even though there was no regulatory obligation to do so in the pre-mandated disclosure period. He found that there was little difference between the two groups both pre- and post-mandated disclosure even when employing several different measures. His main result was that the two groups of companies have virtually the same average monthly stock price residuals – and the same distribution of stock price residuals – throughout both the pre- and post-mandated disclosure period (Benston 1973, pp.146-147).[12] Carol Simon subsequently reproduced Stigler's result (and confirmed in Benston's study) that there was a substantial reduction in the variance of stock price residuals in the post-mandated disclosure period (Simon 1989).[13]

The policy implications of the finding in both the Benston and Stigler study of reduced variance of stock prices (or residuals) has been extensively debated (Seligman 1983; Coffee 1984; Romano 1998; Fox 1999). But there is the threshold question of whether the reduction in variance was caused by the Securities Acts as defenders of mandated disclosure contend (Friend and Westerfield 1975) or resulted from the impact of the Great Depression, as Benston (1975) claims. It is extraordinarily difficult to adjudicate this debate convincingly given the econometric evidence indicating that the Great Depression did have a profound effect on the capital markets, including potentially variance. Carol Simon found, for instance, that the market as a whole experienced a 45% reduction in variance during the Great Depression (1989, p.309).

Conceivably the effects of the Great Depression and the Securities Acts could be disentangled if a good control group were available. Benston's group of 314

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[12] Residuals were calculated for each company's stock in Benston's study using a market model.

[13] Residuals were calculated for each company's stock in Simon's study using a model more sophisticated than the market model, enabling her to take into account effects such as that of firm size on stock prices.

companies which purportedly disclosed sales information voluntarily pre-mandated disclosure would arguably serve this function. The problems with using this group as a control are serious however. First, several commentators have noted that many firms in the non-disclosing group of 193 companies did, in fact, disclose basic financial information, such as net income and balance sheet data (Friend and Westerfield 1975). Second, commentators have argued that the important change wrought by the Securities Acts was primarily in the liability imposed for fraud and non-disclosure given the arguably poor quality of voluntary disclosures even when made (Fox 1999). The increased exposure to liability for inadequate disclosure would have affected both groups of companies. Both these criticisms raise the question of whether measuring the differential effect that the disclosure requirements of the Securities Acts had on Benston's two groups is a good measure of the Acts' overall effect on the capital markets. If the two groups Benston uses are not all that different, then the differential effect of the Securities Acts on these two groups would not serve as a good measure of the Acts' overall effect.

The question of how to measure the Securities Acts' overall effect highlights the fundamental problem that plagues these econometric studies (Stigler 1964; Benston 1973; Jarrell 1984; Simon 1989) of the Securities Act of 1933 and the Exchange Act of 1934. These studies need to disentangle the effects of the Great Depression on the capital markets from any effect caused by the Securities Acts. It is difficult to do this in a convincing manner.

This paper's examination of the extension of mandated disclosure requirements to the OTC market in 1964 does not suffer from this problem for the simple reason that there exists a natural control group. The control group is simply the exchange-listed companies which had been subject to the Exchange Act's disclosure requirements for some thirty years, beginning in 1934. Second, the time period of this study – 1962-1968 – does not contain a traumatic stock market event anywhere on the same order as that of the Great Depression.

Two recent working papers have also focused on the OTC market in measuring the effects of mandated disclosure. Bushee and Leuz (2002) measured the effect the 1999 imposition of mandated disclosure requirements on OTC Bulletin Board companies, which had been exempted from the 1964 Securities Act Amendments given their firm size and number of shareholders, had in terms of liquidity and firms' cost of capital. They found that mandated disclosure both

increased the liquidity and decreased the cost of capital of firms already in compliance with the disclosure requirements. However, they also found that the bulk of the firms on the OTC Bulletin Board moved to other markets rather than comply with mandated disclosure requirements. Moreover, firms not already in compliance and that choose to stay on the OTC Bulletin Board experienced significant negative abnormal returns. These results suggest that mandatory disclosure can be costly to many very small firms.

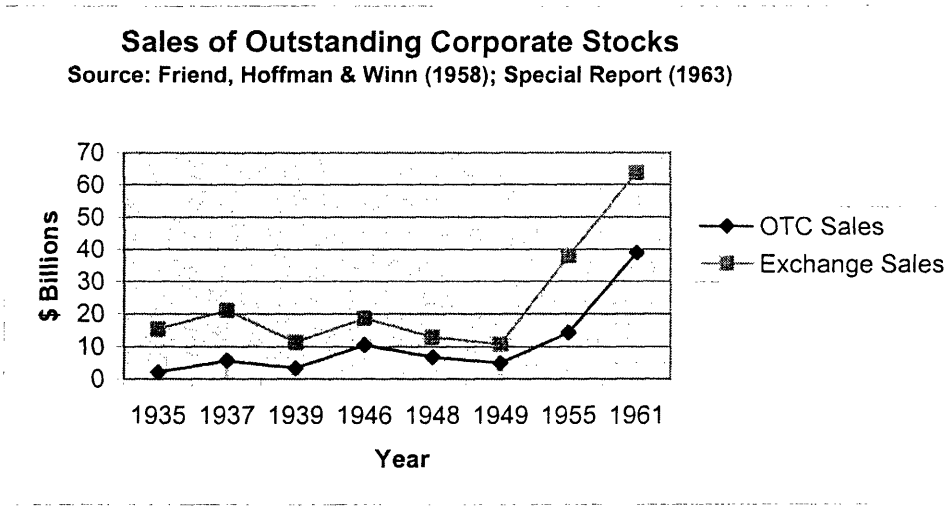
Greenstone, Oyer and Vissing-Jorgenson (2004) in a recent working paper also look at the effects of the 1964 Securities Act Amendments using a dataset that covers the 1963-1966 period. As this paper does for the time period leading up to the passage of the Securities Act Amendments, they find positive abnormal returns associated with the 1964 Securities Act Amendments. This paper, as well as using a longer time-series (1962-1968), also focuses on stock price volatility and stock price synchronicity effects of the legislation.

In addition to these mandated disclosure studies, there are two important related literatures. First, there is a substantial accounting literature analyzing the effects of various changes in financial disclosure regulation. Examples of this line of research include investigations into the effects on the capital markets of line-of-business reporting in accounting reports. Many of these studies focus on the effect of voluntary disclosure decisions by firms. This literature is reviewed in Healy and Palepu (2001). A second literature consists of studies on the effect of securities and corporate laws, including mandated disclosure requirements, on a country's stock market development. A recent important example of this research is a paper by LaPorta, de Silanes and Shleifer (2002) that finds that certain types of securities regulations, including mandated disclosure requirements, are associated with more developed stock markets.

III. The OTC Market and the Securities Acts Amendments of 1964

By the early 1960s the OTC market was a large, important and heterogeneous securities market. It had experienced dramatic growth from the passage of the Securities Acts in 1933 and 1934, which had largely exempted it from regulation, to the beginning of the 1960s. The OTC market grew from $2.1 billion in sales in 1935 to $38.9 billion in 1961. As a percentage of total exchange sales, the OTC market

grew from 16% in 1935 to an impressive 61% by 1961. The following graph illustrates this trend.



A broad range of securities were traded on the OTC market. The OTC market included most government securities; a large number of bank and insurance companies; industrial companies; and utility companies as well as a wide mix of other types of firms. Some summary statistics on the mix of firms over the course of the 1960s will be presented in Part V. Market capitalizations of OTC companies also varied widely from firms worth less than $100,000 to companies worth billions of dollars.

In April 1963, the REPORT OF SPECIAL STUDY OF SECURITIES MARKETS, a highly influential and groundbreaking Securities and Exchange Commission (SEC) study of the state of securities regulation, was completed. It reported that 93% of all the cases of fraud reported by the SEC between January 1961 and July 1962 involved companies that were not subject to the Exchange Act's disclosure requirements. The REPORT also examined approximately 20% of all OTC companies, randomly selected from the OTC market, with an eye to their disclosure practices. It found that 25% of OTC companies did not disseminate any financial information to shareholders. Of those that did distribute financial data, 44% failed to provide any breakdown of their inventories into categories. Thirty-three percent of firms failed to provide any explanatory notes detailing such important items as depreciation methods, contingent liabilities or long-term contractual obligations. Finally, 23% of OTC companies did not certify their financial reports.

Based on these findings, the REPORT concluded that most OTC companies "either make no reports to shareholders at all or their reports are meager and inadequate." (Part III, p.10) The REPORT found this to be true despite the fact that there were a minority of OTC companies, some of whom were included in its survey of disclosure practices, which had some reporting requirements pursuant to Section 15(d) of the Exchange Act.[14] The REPORT recommended that the Exchange Act's disclosure requirements be extended to the vast majority of OTC companies. Legislative action quickly followed. On August 20, 1964, the 1964 Securities Act Amendments were signed into law. The purpose of the amendments, reflecting the analysis and recommendations of the REPORT, was to "afford investors in publicly-held companies whose securities are traded over-the-counter the same fundamental disclosure protections as have been provided to investors in companies whose securities are listed on an exchange" (SEC 1964, p.1).

The 1964 amendments placed on OTC companies the same extensive mandated disclosure requirements as those placed on exchange-listed companies. The amendments added section 12(g) to the Exchange Act of 1934. This section requires OTC companies with more than $1 million in assets and held by more than 750 shareholders to comply with the Exchange Act's periodic disclosure requirements. Section 12(g) does exempt certain types of OTC companies from these requirements. These include "investment companies," such as mutual funds, section 12(g)(2)(B), and insurance companies subject to comparable state regulation, section 12(g)(2)(G). "Investment companies," although exempt from section 12(g), already had, by 1964, substantial disclosure requirements under the Investment Company Act of 1940. Banks are not exempted from the Exchange Act's requirements, but the administration and enforcement of the disclosure requirements are vested in the federal banking agencies rather than the SEC.

The Exchange Act's periodic disclosure requirements, to which OTC companies were subject after the 1964 amendments, include the obligation to file, pursuant to section 13 of the Exchange Act, the now-familiar panoply of periodic reports: the annual report (form 10-K), quarterly reports (form 10-Q) and when certain specified events occur, a current report (form 8-K). The information contained in these reports includes such items as certified annual balance sheets,

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[14] Section 15(d) requires disclosures of companies that issued securities after 1936 assuming that the firm's market capitalization exceeded a certain threshold.

acquisition or sale of a significant amount of assets, and quarterly cash flow statements. Under section 18 of the Exchange Act, any person who makes a statement in an Exchange Act disclosure document that is "false or misleading with respect to any material fact" is liable to any person who buys or sells securities in reliance on such a statement and at a price affected by such a statement. In addition to periodic disclosure requirements, the Exchange Act's proxy solicitation and trading regulations, including the limitations on insider trading, were extended to non-exempt OTC companies meeting the threshold requirements of $1 million in assets and a shareholder base of 750. In other words, even if firms were already providing the periodic reports required under the Exchange Act, they now had to provide additional disclosures in their proxy solicitations.

The effective date specified in the statute of the new reporting requirements depended on the OTC company's fiscal year. Companies had to comply with the new disclosure requirements within 120 days after the last day of its first fiscal year ending after July 1, 1964. Accordingly, the earliest point at which an OTC company was subject to the new disclosure requirements under the statute was November 1, 1964. The SEC, however, granted a reprieve from the statutory deadline allowing companies to file as late as April 1965 if they so choose. If an OTC company's fiscal year began at the start of the calendar year, that company would be subject to the new disclosure requirements as of May 1, 1965. This study will assume (as was in fact the case) that throughout 1965 the reports required by the Securities Act Amendments were first filed by OTC firms. The empirical results, however, do not hinge on using this particular date. The results remain the same regardless of whether one uses a somewhat different starting point.

IV. THE DATABASE

The Center for Research in Securities Prices' database (CRSP) does not include information on the OTC market pre-NASDAQ. As a result, it was necessary to construct a database containing the necessary information on OTC companies. The database contains a number of pieces of information on OTC companies from January 1, 1962 to January 1, 1968. This period covers three years prior to the imposition of mandated disclosure on the OTC market (January 1, 1962 to January 1, 1965) and three years after their imposition (January 1, 1965 to January 1, 1968).

By starting the database in 1962, the paper avoids the possibility that firms' decisions as to whether to have their securities traded on the OTC market or on a listed market was affected by the 1964 Securities Act Amendments. Extension of mandated disclosure requirements to the OTC market only became a realistic legislative possibility in the aftermath of the REPORT's publication in April of 1963. It was the publication of the REPORT, and its recommendation to extend mandated disclosure requirements to the OTC market, that led directly to passage of the 1964 Securities Act Amendments.

The database contains information on companies that were either "primary" or "Eastern" OTC companies as of January 1, 1962. The "primary" and "Eastern" OTC companies, as designated by the Barron's Statistical Section, were OTC stocks in which there was relatively active trading and had at least 500 shareholders. In contrast, OTC companies in the "supplemental" section of the Barron's Statistical Section were not as actively traded and did not need to meet the 500 shareholder threshold. Based on data gathered by the REPORT, which counted the number of OTC companies with different shareholder bases (Table IX-C, Part III), approximately 80% of the "primary" and "Eastern" companies met the Exchange Act's 750 shareholder threshold with the other 20% having somewhere between 500 and 750 shareholders.

It is worth emphasizing that the companies on these two lists are actively traded suggesting that even if a company, at a particular point of time, has somewhere between 500 and 750 shareholders, there is the real possibility that at some other point in time (whether earlier or later) the 750 shareholder threshold would be, at least temporarily, crossed. Once that threshold is crossed, a company is subject to the Exchange Act's disclosure requirements regardless of whether the company knows it crossed the shareholder threshold. Once a company has more than 750 shareholders at a particular point in time, that company is subject to the Exchange Act's requirements unless its shareholder base falls below 300 shareholders. As a result, it would be highly unlikely for a company with actively traded securities and more than 500 shareholders not to comply with the Exchange Act's disclosure requirements and thereby risk running afoul of the Exchange Act. It is therefore reasonable to assume that the remaining 20% of OTC companies would, in reality, be placed under the ambit of the Exchange Act's disclosure requirements.

"Supplemental" OTC companies in the Barron's Statistical Section, in contrast to the "primary" and "Eastern" companies, were not included in the database given the lack of any shareholder threshold for qualification on this list. In addition, there are concerns about the accuracy and reliability of the supplemental quotations for these inactively traded securities.

The "primary" and "Eastern" OTC insurance companies, investment companies and banks were dropped from the database. OTC insurance companies were excluded given their exemption under section 12(g). Investment companies were excluded given their extensive regulation, including mandated disclosure, under the Investment Company Act of 1940. Banks were dropped because of their unique regulatory regime. In addition, all companies which had six or fewer months of returns were also dropped due to the fact that the regression results rapidly lose meaning with so few observations.

There were a total of 762 OTC companies as of January 1, 1962 that were neither insurance companies, investment companies nor banks and had more than six return observations. For each one of these 762 companies, the following pieces of information were collected for the time period January 1, 1962 to January 1, 1965 (the pre-mandated disclosure period): (1) monthly stock quotations; (2) each company's market capitalization as of January 1, 1962; (3) their standard industrial classification (SIC) code; (4) annual sales; (5) any stock or cash dividends; (6) stock splits; (7) liquidation values for any company that was dissolved; (8) whether (and when) the OTC company became listed on an exchange; (9) identity of any company acquiring (or merging with) an OTC company and whether that company was an OTC or exchange-listed company; (10) quotation, dividend and stock split information on any OTC company that acquired (or merged with) one of the original 762 OTC companies; and (11) bankruptcies.

The same information was collected for all "primary" and "Eastern" OTC companies that existed as of January 1, 1965 for the time period January 1, 1965 to January 1, 1968 (the post-mandated disclosure period). Excluding insurance companies, investment companies, banks and companies with six or fewer return observations, there were a total of 731 OTC companies as of January 1, 1965. The market capitalization of these OTC companies was measured as of January 1, 1965.

The quotation information throughout this time period (1962-68) was gathered primarily from Barron's Statistical Section. Barron's, in turn, received their

quotations from the National Association of Securities Dealers' Quotation Bureau. On a few occasions, quotations for a particular company for a specific month would not appear in Barron's "primary" or "Eastern" OTC quotation section but a quotation would be provided in its "supplemental" quotation section. In those cases, the database would include this quotation as the quotation for the stock for that month. A number of OTC companies became listed companies at some point, either through a change in their company's listing or through being acquired by a listed company. These companies' returns are included in the database for the time they were traded on the OTC market.

In addition to Barron's Statistical Section, quotations were also gathered (and cross-checked) against the Bank and Quotation Record, published by the Commercial and Financial Chronicle, the Standard and Poor's Security Owner's Stock Guide and the Wall Street Journal. There were ten OTC companies in the 1962-65 time period for which there were some missing quotations. There were 21 OTC companies in the 1965-68 period for which there were some missing quotations.

Dividend (cash and stock) and stock split information was gathered primarily from Standard and Poor's Annual Dividend Record. Information regarding name changes, acquisitions/mergers, bankruptcies, liquidations and listings on an exchange came from the Annual Guide to Stocks: Directory of Obsolete Securities.

Market capitalization information was available for approximately 90% of the OTC companies and came primarily from the Standard and Poor's Security Owner's Stock Guide. Some additional market capitalization data came from Moody's Handbook of (Widely Held) Common Stocks. Market capitalization was computed based on outstanding common shares. For a minority of companies outstanding preferred share information was available, but was not used given the small number of companies for which this information was available.

SIC information and annual sales information was available for 562 OTC companies in the 1962-65 period and 561 companies in the 1965-68 period. This constitutes approximately 75% of the OTC companies. This information was gathered from Poor's Registry of Directors, Executives and Officers for the years 1962 to 1968.

Out of the 762 OTC companies as of January 1, 1962, three had market capitalizations of less than $1 million. For the 731 OTC companies as of January 1,

1965, three companies also had market capitalizations of less than $1 million. Using market capitalization as a proxy for the value of a firm's assets, these six companies were dropped from the database given the threshold requirement of $1 million in assets in section 12(g) of the Exchange Act.

The control group consisted of all exchange-listed companies, excluding insurance companies, investment companies, banks, and companies with six or less return observations, that had price quotations as of January 1, 1962 and all exchange-listed companies (again excluding insurance companies, investment companies, banks, and companies with six or less return observations) that existed as of January 1, 1965. The control group consists of 1,084 exchange-listed companies that had price quotations as of January 1, 1962 and 1,982 exchange-listed companies that existed as of January 1, 1965. Information for these companies was gathered from the CRSP datafiles.

The factor returns used in the Fama-French regressions and the value-weighted market return are from Kenneth French's datalibrary (which is the same as the CRSP value-weighted index). Finally, the risk-free rates of return were provided by Ibbotson Associates, which has computed this return for every month for the time period studied.

V. SUMMARY STATISTICS

Some summary statistics will be given in order to provide a fuller sense of the types of firms traded on the OTC market and the listed market in the pre-mandatory disclosure period (1962-65) and the post-mandatory disclosure period (1965-68). Table I contains a breakdown of OTC companies in the pre- and post-mandated disclosure periods along a couple of basic dimensions: the number of OTC companies; the number of acquisitions; the liquidations and bankruptcies of OTC companies; the number of OTC companies who change their listing to the listed market; and the average and median market capitalizations of OTC companies. With the exception of market capitalization, the pre- and post-mandated disclosure group of OTC companies look approximately the same.

The number of OTC companies as of January 1, 1962 and January 1, 1965 are quite similar: there were 31 more companies (approximately 4% more) in the January 1, 1962 OTC group. As is shown in Table I, there are also similar numbers of acquisitions of OTC firms and liquidations/bankruptcies in the two time periods. Approximately 16.9% of OTC companies list on an exchange between 1962-65 compared to 16.1% for OTC companies in the 1965-68 period. The percentage of OTC firms that became listed firms, either through listing on an exchange or by being acquired by a listed firm, is 20.2% in the 1962-65 period and 20.6% in the 1965-68 period.

There is, however, a notable difference in both average and median market capitalizations between the two groups. The average common stock market capitalization of OTC firms as of January 1, 1962 was $39,187,000 and a median of $16,464,000. In contrast, as of January 1, 1965, the average OTC common stock market capitalization was $32,507,000 with a median value of $14,205,000. The same basic differences in market capitalizations remain if one looks just at the group of companies that were OTC companies as of January 1, 1962 and January 1, 1965, suggesting that these differences in market capitalizations are not the result of a different mix of OTC firms in the two periods.

The changes in the two-digit SIC industrial classifications of OTC and listed firms are summarized in Table II. A SIC code was included in Table II only if at least 1% of OTC firms were in that industry in either time period. The SIC codes in

Table II cover approximately 90% of the OTC companies for which SIC information was available.

As can been seen in Table II, the mix of types of OTC and listed firms by industry remained, on the whole, fairly stable between 1962-65 and 1965-68. The most noticeable difference between the two periods occurred in the electrical and appliances industry classification (SIC 36). While approximately 14% of all OTC firms fell into the electrical and appliances industry classification group in the 1962-1965 period, this percentage fell to approximately 9% in the 1965-1968 period. At the same time, the number of listed firms in the electrical and appliances industry classification increased from approximately 6% in the 1962-1965 period to close to 9% in the 1965-1968 period.

Given the differences in the mix of industries and market capitalizations between the pre-mandated and post-mandated disclosure period (and the OTC and listed market), these differences will be taken into account in the statistical analysis.

VI. Changes in Volatility

This Part of the paper examines the effect of the 1964 Securities Act Amendments on stock return volatility in the OTC market. The theoretical basis for this focus is the variance-bound literature, which indicates that lower volatility is consistent with increased stock price accuracy (West 1988; LeRoy and Porter 1981). In these models, the earlier information is available to the market -- the presumed effect of mandatory disclosure if it does have an effect -- the lower a stock's return volatility as any information about a firm's future cash-flow/profits is more heavily discounted than it would be if the information was released later in time. This implies, in turn, that stock price accuracy increases due to the incorporation of information into a firm's stock price earlier in time. Prior studies of mandatory disclosure have measured the effect of mandatory disclosure on volatility. (See Stigler 1964; Benston 1973). Consistent with these models and prior empirical research, commentators have typically assumed that lower volatility indicates improved stock price accuracy. (See Fox 1999; Coffee 1984). This assumption about the effect of mandatory disclosure on stock return volatility will be revisited in Part VII.

Section A will look at the effect of mandated disclosure on the volatility of returns over time while Section B will examine, following Simon (1989), the effect of mandated disclosure on the cross-sectional variance of abnormal returns. Finally, Section C will measure the volatility of the OTC market broken down into above-average and below-average performing stocks on a monthly basis. Such a breakdown will enable testing of the hypothesis that mandatory disclosure should reduce the number of "stock blow-ups" as mandatory disclosure will force managers to gradually disclose bad news to the market, rather than conceal the bad news until concealment becomes impossible and accumulated bad news is released all at once to the market.

A. Stock Return Volatility over Time

The three factors important in explaining stock returns that have been identified by Fama and French (Fama and French 1992; Fama and French 1993) will be used in the course of calculating the abnormal returns of stocks. The three factors are market, book-to-market and firm size effects. They are represented, respectively, by the variables $R_{m,t} - R_{f,t}$, HML_t and SMB_t. Each factor represents a variable that has explanatory power in accounting for the cross-section of stock returns. These factors are explained and discussed in detail in Fama and French (1993). Whether these factors represent sources of undiversifiable risk or market imperfections is an issue of considerable debate (see, e.g., Griffin and Lemmon 2002; Fama and French 1995); one which it is unnecessary to resolve for the purpose of calculating a stock's abnormal return.

In addition to the three Fama-French factors, a fourth factor, following Simon (1989), will also be used in calculating abnormal returns. To include the potential impact of changes in the mix of industries on the change in the variance of abnormal returns in the OTC and listed market, the independent variable, $RIND_t$, representing the average return of firms in the same two-digit SIC industry group at time t as that of the firm whose abnormal return is being calculated, will be used. In addition to $RIND_t$, the value-weighted market return at time t, call this variable $R_{m,t}$, and the risk-free rate of return at time t, call this variable $R_{f,t}$, will also be used. Accordingly, $RIND_t - (R_{m,t} + R_{f,t})$ represents the return on an equally-weighted portfolio of firms

in a two-digit SIC classification at time t minus the sum of the market return at time t and the risk-free rate at time t. In effect, $RIND_t - (R_{m,t} + R_{f,t})$ captures the return enjoyed by an industry in time t in excess of the market return and risk-free rate. It follows that for any given time period, $RIND_t - (R_{m,t} + R_{f,t})$ could be negative as well as positive for any given industry. The equally-weighted portfolio return of firms for an industry was calculated using all the firms in the same market with the same two-digit SIC code for the given month.

The abnormal return of each stock in each month will be calculated based on a two-step procedure. First, estimates of the coefficients on the three Fama-French factors – $R_{m,t} - R_{f,t}$, HML_t and SMB_t – and the industry return variable, $RIND_t - (R_{m,t} + R_{f,t})$, will be calculated for each stock based on either the 1962-65 return data or the 1965-68 return data.[15] Estimates are generated by simply regressing a stock's return, call this variable R_t, minus the risk-free rate of return on the three Fama-French factors and the industry return variable. Second, these estimates will then be used to calculate an abnormal return for each stock for each month using the estimated coefficients based on the 1962-65 return data for months in this time period and the estimated coefficients based on the 1965-68 return data for months in that period.[16]

For instance, the abnormal return for a stock in month t would be

$$\text{Abnormal Return}_t = (R_t - R_{f,t}) - \beta_1 * (R_{m,t} - R_{f,t}) - \beta_2 * HML_t - \beta_3 * SMB_t - \beta_4 * (RIND_t - R_{m,t} - R_{f,t}) \quad (1)$$

where $R_t - R_{f,t}$ is the gross return for that stock in month t minus the risk-free rate. In other words, the abnormal return is the portion of a stock's return that cannot be explained by the three Fama-French factors and the industry-return variable. The gross return for a stock includes any dividends (stock or cash) received and are adjusted to take account of any stock splits that occurred during the time period

[15] For every regression in this paper using a four-factor model, we re-ran the regression using just the Fama-French three-factor model. These regressions have been left unreported, except for Section B.1 of Part VI. In no case did the choice between a three-factor model and a four-factor model affect the findings reported and, hence, are left unreported.

[16] For every regression using the four or three-factor model, coefficient estimates were also calculated using the merged 1962-1968 database rather than estimating the coefficients on just the 1962-65 or 1965-68 data. The findings reported in this paper are essentially the same when coefficients are estimated on the merged dataset.

studied. As noted earlier, comprehensive dividend and stock split information was gathered for the OTC stocks from 1962 to 1968. β_1, β_2, β_3, and β_4 are the estimated coefficients on the three Fama-French factors and the industry return variable based on that stock's return data for either 1962-65 or 1965-68 depending on which time period month t is in.

Based on these abnormal return calculations, the variance of the monthly abnormal returns for each OTC stock in the 1962-65 period was calculated and an average of these variances was then taken. The average monthly abnormal return variance was also taken for the post-mandated disclosure period and by year for both the OTC and listed markets. The results are summarized in Table III.

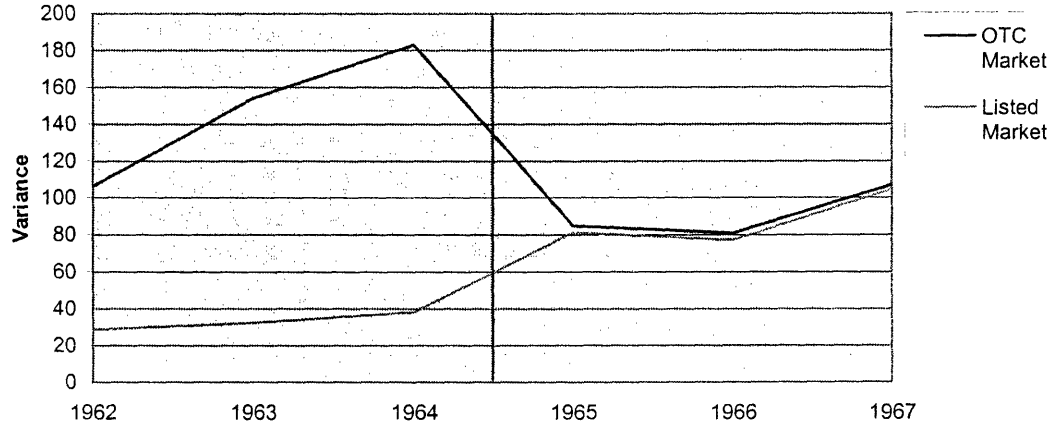
Table III presents a clear discontinuity between the pre- and post-mandated disclosure periods for both the OTC and the listed market in terms of the average variances. The monthly average variance for the OTC market fell substantially: from 140 on average in the pre-mandated disclosure period to 90 in the post-mandated disclosure period. The yearly average variances also tell the same story of falling volatility beginning with the imposition of mandated disclosure. In 1964 the average OTC variance was 183 which fell to 85 in 1965, the first year of mandated disclosure.

Moreover, as reported in Section B of Table IV, the OTC Small-Cap companies – OTC companies with a market capitalization between $1 million and $10 million – likewise experienced a substantial decline in volatility. The average OTC Small-Cap volatility went from 248 to 165 after the imposition of mandated disclosure. As was the case with the OTC market as a whole, the yearly variances of abnormal returns in the OTC Small-Cap group also show a steep decline starting in the year 1965.

In sharp contrast, the listed market, which was already covered by the 1930s disclosure acts, went from a monthly average variance in the 1962-65 period of 33 to a monthly average post-mandated disclosure variance of 91. Likewise, all the yearly listed market variances in 1965-68 for the listed market are sharply higher than any of the yearly listed market variances in the 1962-65 period. Given the fact that the listed market was already subject to mandatory disclosure requirements, this change in volatility was presumably caused by exogenous factors. This is consistent with the fact that volatility can change substantially over time for reasons not related to disclosure.

In short, the variance of the monthly abnormal returns declined substantially in the OTC market when mandatory disclosure requirements were imposed. Secondly, both the OTC and listed market behaved in a far more parallel manner post-mandated disclosure, whether one looks at post-mandated disclosure monthly variances (an OTC variance of 90 versus a listed variance of 91) or yearly variances in 1965, 1966 and 1967. These differences are statistically insignificant even at the 10% level. These two conclusions are illustrated in the graph provided below where the yearly average variances for the two markets over time have been plotted.

Variance of Monthly Abnormal Returns

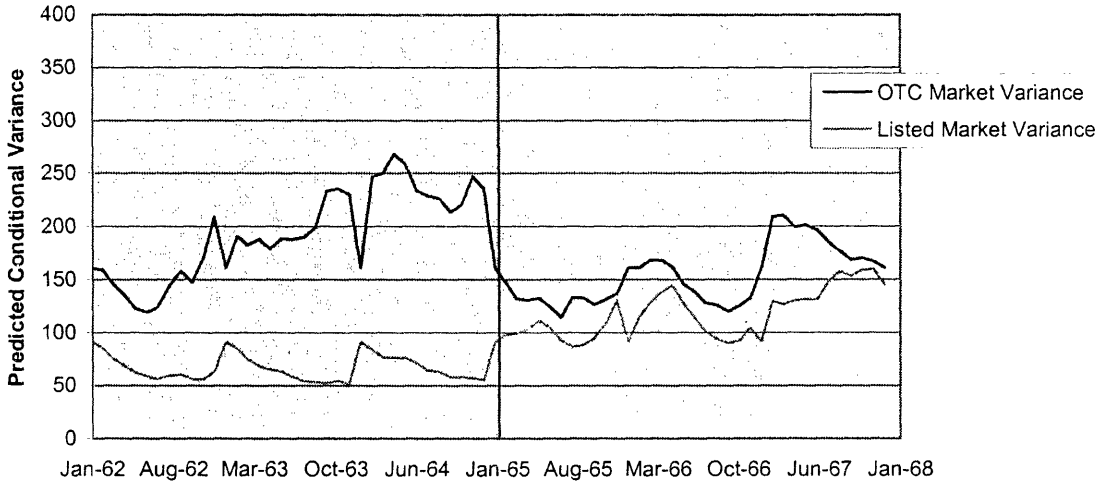


Two robustness checks were used to confirm these findings on individual stock volatility. First, an alternative method of calculated abnormal returns was used. Stephen Brown and Jerold Warner (1980) have shown that net-of-market returns (stock return minus the market return) often accurately capture abnormal returns in a wide set of circumstances. Accordingly, for each stock in every month, the difference in the stock's return minus the overall market return is treated as the abnormal return for that stock in that month. The value-weighted market index is used as the market return, though the results are virtually identical when an equally-weighed market index is used as the market return. The average variances, by period and year, are reported in Section B of Table III. The net-of-market calculations confirm the preceding analysis based on the four-factor model.

As a second robustness check, the predicted conditional variances of individual stocks for each month were calculated using a standard GARCH (1,1) model. The GARCH (1,1) model predicts the variance of an individual stock in an upcoming period by utilizing the fact that stock volatility is autocorrelated. In the

graph below the monthly individual stock variances predicted by the GARCH (1,1) are averaged and plotted across time.

GARCH (1,1) Predicted Conditional Variances



As the graph illustrates, and Table V confirms, the predicted conditional variances over time decrease substantially for the OTC market starting in the post-mandated disclosure period. During the same time, the listed market experienced a substantial increase in the predicted conditional variance in the post-mandated disclosure period. Finally, the OTC and the listed market behaved in a far more parallel manner post-mandated disclosure. The average predicted conditional variances for the years 1965-68 are quite close, in contrast to the 1962-65 period.

B. Cross-Sectional Variance of Stock Returns

Following Simon (1989), the hypothesis in this Section will be that the effect of mandated disclosure, if it is having a beneficial effect, is to reduce the dispersion of OTC companies' abnormal stock returns. If mandated disclosure increases the stock price accuracy of OTC stocks, the assumption is that there should be a reduction in the variance of the abnormal return distribution post-1965 compared to the pre-1965 period for OTC stocks, controlling for changing market conditions. As Carol Simon explains, "The availability of quality information will [ ] affect the riskiness of [stocks]. As such, the effects of legislation aimed at increasing investor

information should be reflected in changes in the dispersion of market-adjusted returns." (Simon 1989, p.295).[17]

Unlike Section A, this Section will not calculate the volatility of a stock's monthly abnormal returns over time. Rather, a three-year abnormal return will be calculated for each stock in the pre-mandatory disclosure period (1962-65) and an abnormal return will be calculated for each stock in the post-mandatory disclosure period (1965-68). After this calculation, the dispersion of abnormal returns in the OTC market will be compared pre- and post-mandatory disclosure, following Simon (1989), and relative to the listed market's dispersion of abnormal returns.

There are 759 OTC companies in the 1962-1965 group and 728 OTC companies in the 1965-1968 group. In Section 1, only the three Fama-French factors will be used in calculating the abnormal returns. In Section 2, the industry return variable and yearly time dummies will be introduced.

Changing market conditions over the time period studied, 1962-1968, will be controlled for using a control group. The control group consists of 1,084 exchange-listed companies for the 1962-65 period and 1,982 exchange-listed companies for the 1965-68 period. The difference in the number of listed companies is simply an artifact of the fact that only companies with six months of return data starting in January of 1962 or January of 1965 were utilized. Listed companies were subject, throughout this period, to the Exchange Act's disclosure requirements.

1. Fama-French Three-Factor Model

The three-factor model for a stock is estimated by:

$$(R_t - R_{f,t}) = \alpha + \beta_1 * (R_{m,t} - R_{f,t}) + \beta_2 * HML_t + \beta_3 * SMB_t + \varepsilon_t \qquad (2)$$

where $R_t - R_{f,t}$ is the gross return to a stock in month t minus the risk-free rate, and the independent variables – $R_{m,t} - R_{f,t}$, HML_t, SMB_t – are, as before, the month t returns to zero-investment factor-mimicking portfolios designed to capture risk-

[17] Other scholars have had similar intuitions. Merritt Fox, for example, states, "Presumably everyone . . . accepts the theoretical proposition that any information that is of value to investors for predicting the future with greater accuracy will lead to less share price dispersion." (Fox 1999).

adjusted market return, book-to-market ratio and firm size effects on stock returns. The abnormal return – the deviation of the stock's performance from the three-factor model – is the intercept term α – for the time-period in question. This is the component of a stock's return that cannot be explained by the three Fama-French factors.

After calculating the abnormal returns using the three-factor model, the variance of abnormal returns for the OTC and listed market were computed for both the pre- and post-mandated disclosure periods. In the pre-mandated disclosure period, the variance of abnormal returns in the OTC market was 16.57, while the variance in the post-mandated disclosure period was 14.01. Standing alone, the difference between these two variances, using a Goldfeld-Quandt test, is statistically insignificant even at the 10% level. At the same time, however, the variance of abnormal returns in the listed market increased dramatically between the 1962-65 and the 1965-68 time periods: from 4.67 to a variance of 10.32. This change in the listed market's variance of abnormal returns is significant at the 1% level. The difference-in-difference estimator of the relative changes in the listed and OTC market is 8.21. The difference in variances between the OTC and listed market's variances in the pre-mandated disclosure period was statistically significant (at the 1% level) while the differences in variances between the OTC and listed market in the 1965-68 period was far smaller and significant only at the 10% level.

There are two interesting aspects to these findings: First, using the listed market as a control group, mandated disclosure appears to be associated with variances in the OTC market that are lower than would have otherwise occurred. The value of using a control group lies in the well-known fact that variances in markets change over time for reasons unrelated to disclosure regulation. Second, the variances of abnormal returns in the OTC and listed market appear to behave in a far more parallel fashion after the imposition of mandated disclosure. These findings, however, do not take into account the differences in the mix of industries between the listed and OTC market over time. The next section will now do so.

2. Effect of Industry Mix on Abnormal Returns

Although the mix of OTC and listed companies by industry remains, on the whole, relatively stable between the two time periods, the breakdown by SIC

classification is not identical. For the approximately 75% of OTC companies for which SIC information was available – 562 out of 759 OTC firms in 1962-1965 and 561 out of 728 OTC firms in 1965-1968 – the regression using the industry return variable, as well as the three Fama-French factors as independent variables, was run. In addition, following Simon (1989), yearly time dummies are also included to capture the effect of the time-specific component of returns. The four-factor model with yearly time dummies is:

$$(R_t - R_{f,t}) = \alpha + \beta_1 * (R_{m,t} - R_{f,t}) + \beta_2 * HML_t + \beta_3 * SMB_t + \beta_4 * (RIND_t - R_{m,t} - R_{f,t}) + \sum_2^3 (\gamma_{j,t} * D_{j,t}) + \varepsilon_t \quad (3)$$

As before $R_{m,t} - R_{f,t}$, HML_t ,SMB_t are the Fama-French factor returns, while $D_{j,t}$ are yearly time dummies where j equals 2 when t equals months 12 to 24 (year 2) and j equals 3 when t equals months 24 to 36 (year 3). The first year is the baseline year in the model. Accordingly, the abnormal return for a given year for a particular firm is the intercept term α plus the time dummy coefficient for that year.

Likewise for the listed companies, the independent variable $RIND_t$ and yearly time dummies were included as independent variables in addition to the three Fama-French factors in calculating abnormal returns. As can be seen from Table II the mix of industries among listed companies also changes over the 1962-1968 time period, although not dramatically.

The results using the four-factor model with yearly time dummies are summarized in Section A of Table VI. Once industry effects are controlled for, the variance of abnormal returns is substantially lower than that found using the three-factor model for the OTC market in both the pre- and post-mandated disclosure period. As can be seen from Table VI, the OTC market's pre-mandated disclosure variance is 11.48 (compared to 16.57 estimated earlier) and its post-mandated disclosure variance is 9.31 (compared to 14.01 estimated earlier). This reduction in variances in the OTC market is statistically significant at only the 10% level. The listed market's variances are also lower than the ones found earlier, although only modestly so: 4.56 for the 1962-65 period and 9.80 for the 1965-68 period.

While the variances are lower when industry effects and time dummies are included in the regressions, the same two basic findings found before using the three-

factor model remain. First, relative to the listed market, the OTC market performs better in the post-mandated disclosure period; the difference-in-difference estimator is 7.40. Second, the two markets perform in a far more parallel fashion in the post-mandated disclosure period; the variances between the OTC and listed market in the post-mandated disclosure period are statistically indistinguishable (even at the 10% level).

These two basic findings are confirmed if one looks at the yearly estimated variances of the two markets summarized in Section B of Table VI. There is no obvious trend in the yearly variances of the OTC market over the 1962-68 period. On the other hand, all the yearly variances of the listed market in the 1965-68 period are substantially higher than any of the yearly variances in the 1962-65 period. In other words, relative to the listed market, the OTC market performed "better" in the post-mandated disclosure period. Secondly, the yearly variances of the OTC and listed market in the 1965-68 period are, on the whole, quite similar. The same cannot be said for the 1962-65 period.

3. Effect of Market Capitalization on Abnormal Returns

It is possible that the imposition of mandated disclosure had a distinct and especially powerful effect on the smallest OTC companies. These are companies for which there might have been very limited private market sources of information. Moreover, only companies with $10 million or more in assets, during this time period, were eligible for listing on the NYSE. OTC Small-Cap companies had no choice but to trade on the OTC market. Accordingly, the OTC market was subdivided into those companies with market capitalizations of less than $10 million (OTC Small-Cap). There were 181 OTC Small-Cap in the 1962-65 period and 205 OTC Small-Cap in the 1965-68 period for which there was two-digit SIC information available in the Standard and Poor's Security Owner's Stock Guide or Moody's Handbook of (Widely Held) Common Stock.

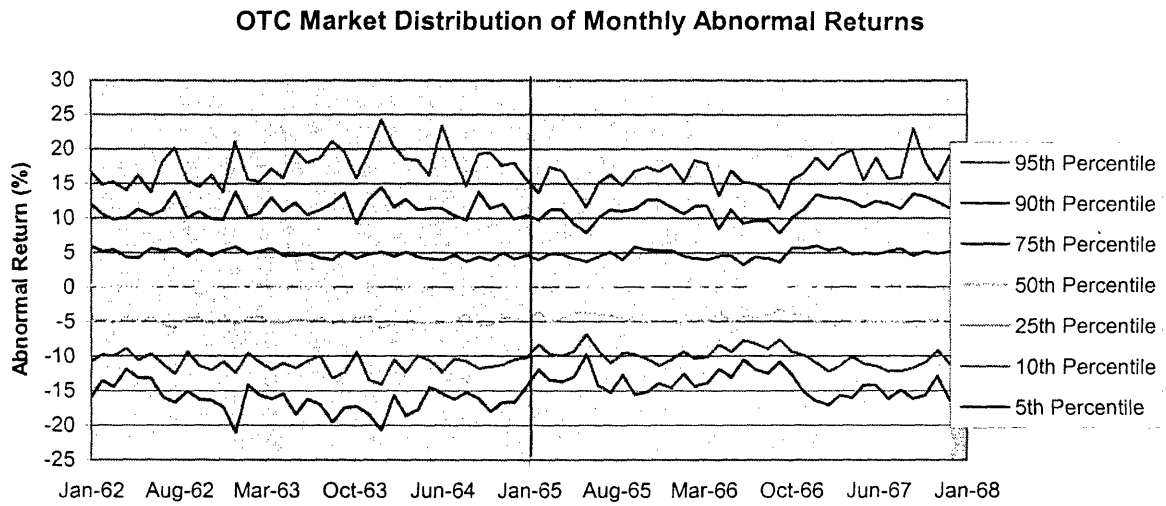
Section A of Table IV summarizes the findings concerning the variance of OTC Small-Cap firms by year and by pre- and post-mandated disclosure using the four-factor model. As can be seen from this Table, limiting one's attention to the OTC Small-Cap companies does not change the findings concerning the variance of abnormal returns discussed earlier. While the period variances are higher for the

OTC Small-Cap group in both the pre- and post-mandated disclosure period (16 and 14, respectively) than was found for the OTC market as a whole (11.48 and 9.31, respectively), there is no statistically significant difference in the variance of abnormal returns for the OTC Small-Cap group pre- and post-mandated disclosure replicating the result found for the OTC market as whole. Nor do any differences appear between the pre- and post-mandated period when one looks at the variance of OTC Small-Cap abnormal returns by year. And as before, relative to the listed market, the OTC Small-Cap firms performed significantly better and more closely paralleled the listed market in the post-mandated disclosure period.

C. Volatility of the Market

Average individual return volatility (Section A) and the overall cross-sectional variance of abnormal returns (Section B) might not capture satisfactorily what is occurring in terms of how the overall distribution of abnormal returns in the OTC and listed market are changing over time. An examination of what is happening to firms with above-average stock return performance and below-average stock return performance would shed additional light on what is happening to the distribution of abnormal returns over time.

Accordingly, for each month, the abnormal returns were divided into one of seven groups based on their relative size: the bottom 5%, 10% and 25% of abnormal returns, the median return, and the top 5%, 10% and 25% of abnormal returns. The values of the abnormal returns at these percentile cut-offs for the OTC market for each month from 1962 to 1968 is summarized in the chart below. For example, the value for the 5th percentile in the OTC market for January 1962 is the abnormal return of the company that has only 5% of OTC firms with larger negative abnormal returns in that month. The black line represents the beginning of the mandated disclosure period in the OTC market.



As the graph indicates, the behavior of the different percentile groups appears to be roughly the same over time with the possible exception of the 5th percentile (the bottom 5% of companies) and the 10th percentile group (the bottom 10% of companies). The 5th and 10th percentile groups appear, on average, to move closer to zero in the post-mandated disclosure period. In other words, the worst performing companies appear to perform somewhat better in the post-mandatory disclosure period (1965-68).

This is consistent with the view that mandated disclosure forces firm managers to disclose bad news gradually over time rather than all at once. In the absence of mandatory disclosure, the hypothesis is that firm managers will tend to conceal bad news until it is impossible to do so any longer. When this point is reached, there is a stock "blow-up" as all the bad news concerning the stock reaches the market at one point in time.

To test rigorously whether the distribution of abnormal returns in these different percentile groupings changed pre- and post-mandated disclosure, the 36 monthly values of each percentile group in the pre-mandated disclosure period were compared to the 36 monthly values of the same percentile group in the post-mandated disclosure period. Given the relatively small sample size (72 observations for each percentile group for the 72 months in the 1962-68 period), a non-parametric K-sample test on the equality of medians was used to determine whether the median value of a percentile group's 36 monthly values in the pre-mandated disclosure

period was statistically different from that percentile group's median value of monthly values in the post-mandated disclosure period.

The results of this analysis are summarized in Section A of Table VII. There were two statistically significant changes, at the 1% level, in the median values in the post-mandated disclosure period: the OTC companies at the bottom 5% and the OTC companies in the bottom 10%. In both groups, the median abnormal returns were closer to zero than in the pre-mandated disclosure period. All the rest of the median values of the percentile groups remained statistically identical, even at the 10% level, in the pre- and post-mandated disclosure period including the median abnormal return for the OTC market. In other words, mandatory disclosure appears to have affected the disclosures made by firms with bad news, while the disclosures made by firms with good news appear to be, on average, unaffected. This is consistent with the view that firms will disclose good news in the absence of mandatory disclosure requirements, while firms with bad news will tend not to.

It is useful at this point to compare the OTC market to what was happening in the listed market contemporaneously based on the breakdown of firms into the same percentile groups. As before, the four-factor model – the three Fama-French factors and the industry return variable – with yearly time dummies are used to calculate abnormal returns. The results are summarized in Table VII. In contrast to the OTC market, there is a noticeable change in the distribution of abnormal returns in the post-mandated disclosure period for all the percentile groups with the lone exception of the overall median value. This impression is confirmed when the median values of the monthly values of the different percentile groups are compared pre- and post-mandated disclosure. Using, as before, a non-parametric K-sample test on the equality of medians, the median values of all percentile groups, except the overall median value, were different in the post-mandated disclosure period with statistical significance at the 1% level.

All values on the listed market were significantly further away from zero after 1965 than they were before 1965. Prior to 1965 most abnormal returns, as captured by these percentile groupings, varied somewhere between –10% and +10%. After 1965, abnormal returns varied in the significantly broader range of roughly –15% to +15%. As a look at the OTC graph and Table VII will confirm, the listed market in the post-mandated disclosure period started performing more like the OTC market in which abnormal returns typically vary somewhere between –15% and

+15% throughout the 1962-1968 time period. Again, the change in the dispersion of abnormal returns in the listed market appear to be affected by non-disclosure exogenous factors.

In short, even after controlling for differences in firm size, industry, book-to-market ratios and overall market fluctuations, the OTC market after the imposition of mandated disclosure experienced some tightening of the distribution with respect to the worst performers, the bottom 5% and bottom 10%. At the same time, the listed market was experiencing a significant, and systematic, increase in the dispersion of abnormal returns, rendering it more like the OTC market.

VII. Changes in Stock Return Synchronicity

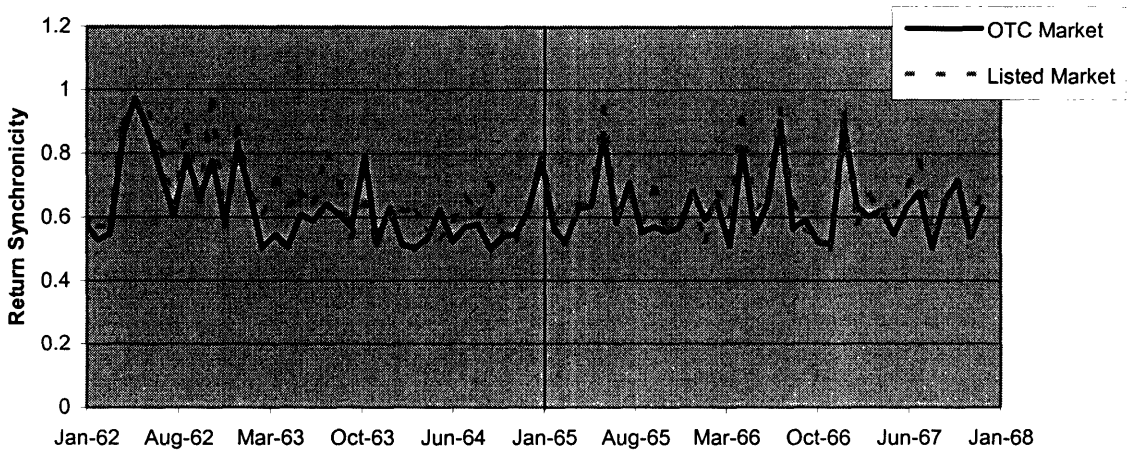
A cross-country study of stock markets by Morck et al (2000) suggests that the informational content of security prices is inversely related to the degree to which stocks move together (the extent of stock return synchronicity). If mandated disclosure improved the informational content of OTC stock prices, then the hypothesis, based on this research, is that the stock return synchronicity of the OTC market should fall. This Part will use the two stock return synchronicity measures employed by Morck et al (2000): the co-movement of stocks and the R^2 (explanatory power) of asset pricing models. Moreover, this Part will also provide estimates of the average firm-level volatility in the listed and OTC market pre- and post-mandated disclosure.

A. Co-Movement of Stocks

The first straightforward measure of stock return synchronicity is based on the co-movement of stocks (Morck et al 2000). The stock return synchronicity of a market for any given month, based on the co-movement of stocks, is the number of stocks that move up (if that number is greater than the number that move down) or the number of stocks that move down (if that number is greater than the number that move up) divided by the total number of stocks that move either up or down that month. Accordingly, the co-movement measure of stock return synchronicity, call it f, will lie somewhere between .5 and 1.

The f for both the listed market and the OTC market is estimated for each month. Stocks whose prices did not change have been dropped from the calculation of f to avoid possible bias due to non-trading. The results are summarized graphically below. The black line once again represents the first month of 1965, the beginning of the mandated disclosure period.

Return Synchronicity in the OTC and Listed Stock Markets



If one confines one's attention to the period immediately surrounding the imposition of mandated disclosure, the changes in the OTC market's co-movement mirrors quite closely the changes in the co-movement of the listed market. In both the listed and OTC market there was, in the immediate aftermath of the imposition of mandated disclosure on the OTC market, a decrease in the co-movement of stocks. As the graph illustrates, throughout the post-mandated disclosure period the OTC market mirrored more closely the changes in co-movement experienced by the listed market than was the case in the pre-mandated disclosure period. The correlation coefficient of the co-movement in the OTC market and the co-movement in the listed market was .83 in the pre-mandated disclosure and an impressive .92 in the post-mandated disclosure period.

Table VIII contains the average co-movement of stocks both by year and for the 1962-65 and 1965-68 time periods. The average co-movement of stocks in the OTC market in both the 1962-65 period and the 1965-68 period was .63. The listed market experienced a slight decrease in co-movement, from .68 to .66. Accordingly, if one were to use the co-movement of stocks as a proxy for stock price accuracy, one could not conclude that the OTC market became more informationally efficient

as a result of mandated disclosure. At the same time, given the substantial increase in the correlation coefficient, the OTC market did mirror more closely the behavior of stocks in the listed market.

B. R^2 and Firm-Specific Variation

The R^2 measure of stock return synchronicity was originally explored by Roll (1988) and developed by Morck et al (2000). The R^2 measure calculates stock return synchronicity by the extent to which the returns of a stock can be accounted for (explained) by broader market fluctuations. In other words, R^2 is the proportion of stock return movement that can be explained by reference to broader market movements. Recent empirical research has indicated that R^2 is economically meaningful. Firms with high R^2 stocks invest capital less efficiently than their low R^2 firm counterparts (Wurgler 2000). On a related note, R^2 is also inversely related to a stock's informational content. High R^2 stocks impound less information about the company's future earnings than low R^2 stocks (Durnev et al 2001b). Finally, as the U.S. stockmarket has developed over the last forty years, there has been a decline in the average R^2 of U.S. stocks (Campbell et al 2001). The same findings have also been found to hold true for stocks with high levels of firm-specific variation; stock variation unexplained by broader market fluctuations (Durnev et al 2001b). Stocks with high levels of firm-specific variation have been found to have more information impounded into their price than stocks with lower levels of firm-specific variation.

The R^2 measure of stock return synchronicity is based on the four-factor model with time dummies used earlier (see equation 3). Following Morck et al (2000), the stock return synchronicity of the OTC and listed markets based on R^2 will be measured in two ways: (1) the average (adjusted) R^2 of stocks in the OTC or listed market for a given period of time; (2) a weighted average of the (adjusted) R^2 in the OTC or listed market for a given period of time, where adjusted R^2s are weighted by individual firm volatility. In the second measure, the average will therefore be calculated in the following way:

$$R^2 = \frac{\sum_i R_i^2 x SST_i}{\sum_i SST_i} \qquad (4)$$

where R_i^2 and SST_i are, respectively, the (adjusted) R_i^2 and sum of squared total variation of stock i. The higher the R^2 the more stocks move together in a synchronized manner in that market.

The averages (unweighted and weighted) in the pre- and post-mandated disclosure periods is reported in Table IX. As with the market co-movement measure of stock return synchronicity, one cannot conclude from this measure that mandated disclosure changed the synchronicity of the OTC market vis-a-vis the listed market. While the unweighted R^2 of the OTC market decreased from .33 to .28 (statistically significant at the 1% level), the listed market also experienced a 1% statistically significant decline from .41 to .31. The changes in the weighted R^2 in both the OTC and listed market pre- and post-mandated disclosure were statistically insignificant even at the 10% level. At the same time, the estimates of the listed and OTC unweighted and weighted R^2s are far closer post-mandated disclosure.

The same pattern emerges when one looks at the average firm-specific variation (variation left unexplained by the four-factor model). The average firm-specific variation increased from .54 to .56 in the OTC market, while the average firm-specific variation in the listed market increased from .48 to .56, although neither change is statistically significant at even the 10% level. In the post-mandated disclosure period, the average levels of firm-specific variation were identical in the OTC and listed market.

While the stock return synchronicity literature is clearly an important one, these results do suggest that further refinement and investigation of the stock return synchronicity measures (co-movement of stocks; weighted and unweighted R^2s; firm-specific variation) would be useful. For instance, the stock return synchronicity measures all indicate that prior to mandated disclosure, the OTC was more informationally efficient than the listed market – a result which is highly implausible and at odds with the findings in Part VI. Moreover, unlike volatility, there has been no formal model theoretically linking stock return synchronicity with stock price accuracy.

VIII. CHANGES IN STOCK RETURNS

Stigler (1964), Benston (1973), and Greenstone, Oyer and Vissing-Jorgenson (2004) examine stock returns pre- and post-mandated disclosure as a test for the desirability of mandated disclosure. Stigler reasoned that the purpose of mandated disclosure is to improve shareholder welfare, and, hence, stock returns are a natural place to look to test whether this is, in fact, occurring. Using similar reasoning, Benston argued that if managers were adequately disclosing pre-mandated disclosure, then mandated disclosure might be viewed by investors as imposing a net cost on the firm, which would manifest itself in lower stock returns. Greenstone, Oyer and Vissing-Jorgenson, employing the model of Shleifer and Wolfenzon (2002), reasoned that mandatory disclosure, if it is having an effect, would result in a redistribution of firm value from insiders, such as controlling shareholders and managers, to shareholders generally as a class. This would result in positive abnormal returns for shareholders of OTC firms.

The benefits of an improved disclosure regime will be capitalized into OTC stock prices when the market first learns that mandated disclosure will be imposed at some future point in time.[18] This capitalization of the benefits into the stock price will result in abnormal stock returns in the OTC market. Given that the benefits of improved disclosure will be capitalized into stock prices prior to the actual imposition of mandatory disclosure, stock returns in the post-mandatory disclosure period should be unaffected. The hypothesis in this Part will accordingly be that if mandated disclosure requirements have a beneficial effect then OTC stocks in the period immediately prior to the imposition of mandated disclosure, when the market first learned that mandated disclosure would be imposed, should enjoy positive abnormal returns.

The Securities Act Amendments became increasingly likely throughout 1963, as Congress reacted to the SEC's REPORT's analysis and recommendations that first became public in 1963, but was probably considered very unlikely throughout 1962. It is important to remember that it was the SEC's REPORT that directly led to the passage of the Securities Act Amendments of 1964. The return associated with going

[18] When we looked at volatility and stock price synchronicity, the fact that the market might have anticipated the imposition of mandated disclosure was unimportant in constructing the statistical tests. Even if the market anticipated that more firm-specific information would be reaching the market as a result of mandated disclosure prior to 1965, the informational content of securities prices would not have been improved until the firm-specific information was actually released.

long a portfolio consisting of all the OTC firms, equally-weighed by firm, and shorting all the listed firms, equally-weighted by firm, resulted in a positive monthly abnormal return of 48 basis points in 1963 -- approximately a 6% abnormal stock return for 1963. Abnormal returns, as before, were calculated controlling for the three Fama-French factors (firm size, book-to-market and market beta effects).

These abnormal return findings are consistent with those of Greenstone, Oyer and Vissing-Jorgenson (2004), who likewise found positive abnormal returns for OTC stocks for the 1963 period of approximately 8%. The small difference in abnormal return estimates between the two studies is not surprising given differences in the two studies' coverage of OTC firms.

In short, the results indicate a positive abnormal return associated with market anticipation of legislative enactment of mandatory disclosure requirements for the OTC market. If one instead compares the entire 1962-1965 period to the entire 1965-1968 period, one would expect this abnormal return result to be lost because the increased value associated with mandated disclosure would have been capitalized into stock market prices by the time of actual implementation of mandatory disclosure requirements in 1965. Moreover, the 1962-1965 time period might be an insufficiently precise identification of when the market anticipated the 1964 Securities Act Amendments. This is, in fact, what the data indicates.

Consider first the median abnormal return. The median value of the 36 OTC monthly median abnormal returns in the pre-mandated period was -.01% while the median value of the 36 monthly median abnormal returns in the post-mandated disclosure period was actually a bit worse at -.07%. A non-parametric K-sample test of the equality of medians shows that the pre- and post-mandated disclosure median values are statistically identical even at the 10% level. The same equality of the median abnormal returns pre- and post-mandated disclosure also held true for the listed market. The 1962-65 median value of the monthly median abnormal returns in the listed market was -.10%. This is statistically identical, even at the 10% level, to –.25%, the 1965-68 median value of the monthly median abnormal return.

The average OTC abnormal return in the pre-mandated disclosure period was calculated by calculating the average of the abnormal returns of the OTC stocks estimated over the 1962-1965 period using the four-factor model. As before, the abnormal return for a firm is the intercept term in equation 3. The average pre-mandated disclosure abnormal return in the OTC market was .26% while the average

post-mandated disclosure abnormal return in the OTC market .33%. In the listed market, the average abnormal return in the 1962-1965 period, calculated in the same manner, was .26%, the same as that in the OTC market, and .35% in the post-mandated disclosure period. Using a t-test of averages (assuming unequal variances), the average abnormal returns in the OTC market and the listed market in both the pre- and post-mandated disclosure period were statistically identical even at the 10% level. The difference-in-difference estimator – .02 – is statistically insignificant even at the 10% level. These results are summarized in Table X.

In short, even though the data indicates that the imposition of disclosure did generate abnormal positive returns in 1963, when the legal change was first anticipated by the market, the data also indicates that returns during the post-mandatory disclosure period of 1965-1968 were no higher than those of the pre-mandatory disclosure period of 1962-1965. This suggests that prior studies indicating that the 1930s Securities Acts generated no abnormal positive returns cannot reliably base such a conclusion on a simple comparison of returns pre- and post-mandated disclosure as some earlier empirical studies have done (Stigler 1964).

IX. Conclusion

This paper has investigated, using a unique dataset created for this purpose, the impact that the imposition of mandated disclosure in 1964 had on the OTC market. Despite the fact that this change was arguably the most fundamental change in the scope of mandated disclosure with the exception of the Securities Acts themselves, it has never been studied before this paper. This study does not suffer from having to isolate the effects of the Great Depression from the effects of mandated disclosure. Moreover, changing market conditions can be controlled for as exchange-listed securities had long been subject to mandated disclosure by the time mandated disclosure was first imposed on the OTC market.

This paper tests a variety of hypotheses used in the econometric literature to study the effects of mandated disclosure. Different researchers have utilized different hypotheses in the course of analyzing the effects of mandated disclosure. This paper has attempted to test as many of these hypotheses as is possible given the data available.

In terms of stock return volatility, both cross-sectionally and over time, two findings stand out. First, relative to the listed market, OTC stock volatility fell substantially after the imposition of mandated disclosure. The findings with respect to volatility over time are especially dramatic. Second, in the post-mandated disclosure period the OTC and listed market behaved in a far more parallel manner than was the case in the pre-mandated disclosure period. A variety of statistical techniques are used to measure volatility, all of which support these two basic findings.

Turning to other proxies for improved stock price accuracy, the results are not as clear-cut. There is no discernable change in the overall average stock return synchronicity attributable to mandated disclosure. For reasons given in the paper, there are reasons for questioning whether average stock return synchronicity in this particular context is a good proxy. The stock return synchronicity findings do indicate, however, that in the post-mandated disclosure period, the OTC and listed markets behaved in a more parallel manner along this dimension.

Finally, changes in average and median stock returns resulting from mandated disclosure are examined in Part VIII. Using this particular measure, the anticipation of mandated disclosure in 1963 is associated with positive abnormal returns.

TABLE I
SUMMARY STATISTICS

This table presents a breakdown of the 1962-65 and 1965-68 OTC firms along a couple of basic dimensions. Market capitalization information was gathered from *Standard and Poor's Security Owner's Stock Guide* and *Moody's Handbook of (Widely Held) Common Stocks.* Market capitalization was computed based on the value of outstanding common shares. Information regarding mergers, bankruptcies, liquidations and OTC firms that decide to list on the NYSE, AMEX or some other exchange is from the *Annual Guide to Stocks: Directory of Obsolete Securities.*

	OTC 1962-1965	**OTC 1965-68**
Number of Firms	759	728
Switch to NYSE-Listing	72	61
Switch to AMEX-Listing	51	55
Other-Listing	5	1
Merged with NYSE Firm	25	32
Merged with Amex Firm	1	1
Merged with OTC Firm	7	10
Liquidations/ Bankruptcies	8	10
Median Mkt Capitalization	$16,464,000	$14,205,000
Average Mkt Capitalization	$39,187,000	$32,507,000

TABLE II
SIC CLASSIFICATION

This table presents the percentage breakdown of OTC and exchange-listed firms by their two-digit standard industrial classification (SIC) as of January 1, 1962 and as of January 1, 1965. Companies with six or less observations and financial companies (SIC 60-64 & 67) were dropped. After these companies were dropped, there were 562 OTC companies for which there was SIC information as of January 1, 1962 and 561 OTC companies for which there was SIC information as of January 1, 1965. There were 1,084 exchange-listed companies with SIC information as of January 1, 1962 and 1,981 exchange-listed companies with SIC information as of January 1, 1965. SIC classifications for exchange-listed companies were obtained from the University of Chicago Center for Research in Security Price (CRSP) database. SIC classifications for OTC companies were obtained from *Poor's Registry of Directors, Executives and Officers*. SIC classifications with less than 1% of the OTC and exchange-listed companies were dropped in this table.

1962 OTC Market Firms				1965 OTC Market Firms			
SIC	Percent	SIC	Percent	SIC	Percent	SIC	Percent
13	3.38%	36	14.24%	13	3.92%	36	9.27%
20	4.27%	37	3.03%	20	4.99%	37	2.85%
22	1.60%	38	3.38%	22	1.43%	38	3.39%
23	1.07%	39	2.31%	23	3.03%	39	2.50%
26	2.49%	42	1.78%	26	2.50%	42	1.78%
27	4.09%	48	1.25%	27	3.57%	48	1.07%
28	7.30%	49	10.50%	28	5.17%	49	11.05%
30	1.25%	50	3.20%	30	2.14%	50	3.21%
32	3.20%	54	1.78%	32	2.14%	54	1.78%
33	3.56%	65	1.25%	33	3.74%	65	2.50%
34	2.85%	73	1.42%	34	3.74%	73	2.32%
35	9.25%	89	0.72%	35	8.02%	89	1.07%

1962 Listed Market Firms				1965 Listed Market Firms			
SIC	Percent	SIC	Percent	SIC	Percent	SIC	Percent
10	1.77%	36	6.20%	10	2.37%	36	8.79%
13	1.08%	37	6.35%	13	3.59%	37	5.23%
20	7.09%	38	2.86%	20	5.73%	38	2.62%
21	1.14%	39	0.87%	21	1.00%	39	1.40%
22	2.03%	40	3.75%	22	2.23%	40	1.98%
23	1.56%	45	1.14%	23	2.38%	45	1.19%
26	3.00%	48	0.78%	26	2.44%	48	1.41%
27	1.38%	49	9.95%	27	1.40%	49	6.35%
28	7.41%	50	0.78%	28	6.76%	50	1.98%
29	3.02%	53	2.76%	29	2.14%	53	2.53%
30	1.37%	54	1.60%	30	1.72%	54	1.56%
32	3.31%	56	0.88%	32	2.75%	56	1.01%
33	5.95%	59	0.71%	33	4.57%	59	1.37%
34	3.64%	65	0.38%	34	4.02%	65	1.70%
35	8.97%			35	7.46%		

TABLE III

VARIANCE OF ABNORMAL AND NET-OF-MARKET RETURNS OVER TIME

This table summarizes the variances of abnormal and net-of-market returns. Abnormal returns are calculated from a four-factor model with yearly time dummies using book-to-market, firm size, market return in excess of the risk-free rate, and industry average return in excess of the risk-free and market return as explanatory factors using Newey-West (1987) autocorrelation- and heteroskedasticity-consistent standard errors. Based on the four-factor model with yearly time dummies, an abnormal return is calculated for each month for each stock. The variance of abnormal returns is then calculated for each stock by year and pre- and post-mandated disclosure periods. The average of these variances, by time period and market, is reported in Section A. Section B reports the average variance by year and pre- and post-mandated disclosure periods of net-of-market returns. Net-of-market return for a stock is its stock return minus the market return for a given month. The market return is a value-weighted market index as reported in Kenneth French's datalibrary. Stocks with returns greater than +250% were dropped as outliers (for a total of eleven observations).

A. Average Variance of Abnormal Returns over Time

Year	Variance of OTC Market Abnormal Return	Variance of Listed Market Abnormal Return
1962	106	29
1963	154	32
1964	183	39
1965	85	81
1966	81	78
1967	107	105
1962-65	140	33
1965-68	90	91

B. Average Variance of Net-of-Market Returns over Time

Year	Variance of OTC Net-of-Market Returns	Variance of Listed Net-of-Market Abnormal Returns
1962	172	51
1963	228	42
1964	267	47
1965	118	108
1966	127	120
1967	178	144
1962-65	210	48
1965-68	143	129

TABLE IV
SMALL MARKET CAPITALIZATION RESULTS

This table displays the variance of abnormal returns for OTC firms with between one and ten million dollars in common stock market capitalization (OTC Small-Cap). Firms in this group had common stock market capitalizations between $1 and 10 million in each period. Common stock market capitalization was collected from *Standard and Poor's Security Owner's Stock Guide* and *Moody's Handbook of (Widely Held) Common Stock.* There were 181 such companies in the pre-mandated disclosure period and 205 such companies in the post-mandated disclosure period with SIC information available from *Poor's Registry of Directors, Executives and Officers*. Returns that exceeded +250% were dropped from the data as outliers (for a total of eleven observations). Two types of variances are calculated below: the average cross-sectional variance of abnormal returns using a four-factor model by year (Section A) and the average variance of abnormal returns over time using a four-factor model with time dummies (Section B). Variances in Section B are averaged by year and the pre- and post-mandated disclosure periods. The four explanatory factors are book-to-market, firm size, value-weighted market return in excess of the risk-free rate of return, and the industry return in excess of the risk-free and market returns. All abnormal returns are calculated using Newey-West (1987) autocorrelation- and heteroskedasticity-consistent standard errors.

A. Variance of Abnormal Returns of OTC Small-Cap by Year

	Time Elapsed	Pre-Mandated Disclosure	Post-Mandated Disclosure	F-Statistic (for difference)
OTC Market	1-12 months	16	14	1.14
	13-24 months	18	16	1.07
	25-36 months	19	22	1.20

B. Average Variance of Abnormal Returns of OTC Small-Cap over Time

Year	Variance of Monthly Abnormal Returns
1962	185
1963	255
1964	298
1965	142
1966	133
1967	185
1962-65	248
1965-68	165

TABLE V
GARCH CONDITIONAL VARIANCES

The following table shows predicted conditional variances derived from a GARCH (1,1) model. Conditional variance predictions are based on the four-factor model with time dummies using book-to-market, firm size, market return, and industry average return as explanatory factors. Returns that exceeded +250% were dropped from the data as outliers (for a total of eleven observations). The values below are averages of individual predicted conditional variances generated by the GARCH process. Averages are shown by year and for the pre- and post-mandated disclosure periods. Predicted conditional variance values indicate changes in the structure or composition of abnormal return volatility. A t-test of means assuming unequal variances is used to determine whether the differences of the mean predicted conditional variance values are statistically significant.

Year	OTC Market Predicted Conditional Variance	Listed Market Predicted Conditional Variance	Difference
1962	150	66	-83.77**
1963	197	64	-132.94**
1964	232	69	-163.27**
1965	134	101	-32.85**
1966	145	111	-33.16**
1967	184	138	-45.47**
1962-65	193	66	-126.66**
1965-68	154	117	-37.16**

** Significant at the 1% level

TABLE VI

CROSS-SECTIONAL VARIANCE OF FOUR-FACTOR ABNORMAL RETURNS

This table summarizes the variance of the cross-sectional abnormal returns. Abnormal returns were calculated using book-to-market, firm size, market return, and industry average return over the risk-free and market returns as explanatory factors (Consult Fama and French (1993) on the construction of the first three factors). The sample period is January 1, 1962 to January 1, 1965 (pre-mandated disclosure period) and January 1, 1965 to January 1, 1968 (post-mandated disclosure period). All abnormal returns are calculated using Newey-West (1987) autocorrelation and heteroskedasticity-consistent standard errors. Stocks whose returns exceeded +250% were dropped from the data as outliers (for a total of eleven observations). The Quandt-Goldfield test is used to determine whether the differences in variances are statistically significant.

A. Variance of Abnormal Returns: Pre- and Post-Mandated Disclosure

	1962-1965	1965-68	Difference	F Statistic
OTC Market	11.48	9.31	-2.17	1.23
Listed Market	4.56	9.80	5.24	2.15
Difference	6.91	-0.49	7.40	

B. Variance of Abnormal Returns by Year

	Time Elapsed	Pre-Mandated Disclosure	Post-Mandated Disclosure	Difference	F-Statistic (for difference)
OTC Market	1-12 months	11.48	9.31	-2.17	1.23
	13-24 months	16.87	16.05	-0.81	1.05
	25-36 months	13.75	23.94	10.19	1.74
Listed Market	1-12 months	4.56	9.80	5.24	2.15
	13-24 months	5.59	14.07	8.47	2.52
	25-36 months	3.83	32.22	28.39	8.41

TABLE VII
MEDIAN MONTHLY ABNORMAL RETURNS BY PERCENTILE GROUP

This table summarizes the distributional changes of the monthly abnormal returns in the pre- and post-mandated disclosure periods. Monthly abnormal returns are derived from a four-factor model (three Fama-French factors and an industry return control) with time dummies. Outliers (defined as stock returns reported +250%) were dropped prior to calculation of abnormal returns (for a total of eleven observations). Section A shows values of various percentile groups of monthly abnormal returns in the pre- and post-mandated disclosure periods. Section B displays the Pearson Chi^2 test statistics resulting from a non-parametric K-sample test on the equality of median percentile values. Significance in the differences at the 1% level is indicated with two asterisks in Section A.

A. Percentile Values for Monthly Abnormal Returns: Pre- and Post-Mandated Disclosure

	OTC Market			Listed Market		
Percentile	**1962-65**	**1965-68**	**Difference**	**1962-65**	**1965-68**	**Difference**
5th	-16.20	-14.18	2.02**	-8.53	-12.92	-4.39**
10th	-10.81	-10.03	0.78**	-6.31	-9.57	-3.26**
25th	-4.98	-4.81	0.16	-3.13	-4.79	-1.66**
50th	-0.01	-0.07	-0.06	-0.10	-0.25	-0.15
75th	4.69	4.74	0.05	3.19	4.33	1.14**
90th	11.17	11.30	0.13	6.77	10.51	3.74**
95th	17.76	16.43	-1.33	9.54	15.82	6.29**

** Significant at the 1% level

B. Pearson Chi^2 Test Statistics for Non-Parametric Test on the Equality of Percentile Cutoff Medians

	OTC Market		Listed Market	
Percentile	**Pearson Chi^2 Value**	**Continuity-Corrected Pearson Chi^2 Value**	**Pearson Chi^2 Value**	**Continuity Corrected Pearson Chi^2 Value**
5th	18.00	16.06	56.89	53.39
10th	8.00	6.72	50.00	46.72
25th	0.22	0.06	26.89	24.50
50th	0.22	0.06	2.00	1.39
75th	0.00	0.06	50.00	46.72
90th	0.22	0.06	56.89	53.39
95th	2.00	1.39	56.89	53.39

TABLE VIII
MARKET CO-MOVEMENT

This table presents average market co-movement by year, by period (pre- and post-mandated disclosure), and over the entire six-year span of this study. Market co-movement is calculated by first taking the number of increasing stock returns and dividing by the total number of stock returns with non-zero returns for a given month. A similar fraction is computed with the number of decreasing stock returns in the numerator. The larger of the two fractions (increasing or decreasing) is the market co-movement for that month. The numbers reported below are simple averages of the monthly market co-movement values; larger market co-movement values indicate that stocks in that period moved more closely together than stocks in a period or market with a lower market co-movement value.

Average Market Co-Movement

Year	OTC Market Market Co-Movement	Listed Market Market Co-Movement
1962	0.71	0.75
1963	0.61	0.67
1964	0.56	0.60
1965	0.63	0.65
1966	0.63	0.66
1967	0.64	0.67
1962-65	0.63	0.68
1965-68	0.63	0.66
1962-68	0.63	0.67

TABLE IX
STOCK RETURN SYNCHRONICITY: R^2

This table summarizes the average explanatory power – the adjusted R^2 – of a four-factor model of stock returns with yearly time dummies and the average firm-specific variation for OTC and listed stocks. The four explanatory factors are book-to-market, firm size, the value-weighted market return in excess of the risk-free rate, and the industry return in excess of the risk-free and market returns. Unweighted average R^2 is the mean of the adjusted R^2 for the four-factor model pre- and post-mandated disclosure for a group of stocks (OTC or listed). Differences between the unweighted average R^2s is tested for by using a ttest of means assuming unequal variances. The weighted average R^2 is the mean of the adjusted R^2 for the four-factor model with time dummies weighted by that firm's individual volatility (see equation 4). Firm-specific variation is the fraction of a firm's total return variance that is left unexplained by the four-factor model with time dummies. The table presents the average firm-specific variation for the OTC and listed market pre- and post-mandated disclosure.

Average R^2 and Firm Specific Variation

	1962-65	1965-68	Difference
OTC Market			
Unweighted R^2	0.33	0.28	-0.05**
Weighted R^2	0.29	0.33	0.04
Firm Specific Variation	0.54	0.56	0.02
Listed Market			
Unweighted R^2	0.41	0.31	-0.09**
Weighted R^2	0.41	0.32	-0.09
Firm Specific Variation	0.48	0.56	0.07

** Significant at the 1% level

TABLE X
MEDIAN AND AVERAGE ABNORMAL RETURNS

This table shows the median values of monthly abnormal returns (Part A) and the mean values of abnormal returns (Part B) for each market in the pre- and post-mandated disclosure periods. The table also shows the appropriate difference values as well as their significance (note that none of the values below are significant at the 10% levels). Significance of the median values is determined by a K-sample nonparametric test on the equality of medians; significance of the average abnormal return is computed using a two-sample t-test of means assuming unequal variances, with standard errors reported in parentheses. Both abnormal returns are based on a four-factor model with yearly time dummies using book-to-market, firm size, market return in excess of the risk-free rate, and industry average return in excess of the risk-free and market returns as explanatory factors. Return values that exceeded +250% were dropped as outliers (for a total of eleven observations).

A. Median Monthly Abnormal Return

OTC Market	**1962-1965**	**1965-1968**	**Difference**
Median	-0.01	-0.07	-0.06
Listed Market	**1962-1965**	**1965-1968**	**Difference**
Median	-0.1	-0.25	-0.15

B. Average Abnormal Returns

OTC Market	**1962-1965**	**1965-1968**	**Difference**
Average	0.26 (0.024)	0.33 (0.021)	0.07 (0.032)
Listed Market	**1962-1965**	**1965-1968**	**Difference**
Average	0.26 (0.010)	0.35 (0.012)	0.09 (0.015)
			Difference-in-Difference
Difference	0.00 (0.026)	-0.02 (0.024)	0.02 (0.036)

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DOES THE EVIDENCE FAVOR STATE COMPETITION IN CORPORATE LAW?

Lucian Bebchuk, Alma Cohen, and Allen Ferrell

I. RECONSIDERING THE EVIDENCE ON STATE COMPETITION IN CORPORATE LAW

One of the most central and enduring debates in corporate law concerns the role that states play in the regulation of corporations. Simply put, what are the costs and benefits of allowing a firm, through its incorporation decision, to select which state's corporate law applies to its activities? The modern debate on the subject, which began with William Cary's attack[19] on state competition as fostering a "race to the bottom," has produced a voluminous literature.[20] The debate has had remarkable resiliency; in recent years there has been a burst of writing by legal academics weighing in on the subject.[21] Nor is interest any longer confined to U.S. academics; European policymakers now face the pressing question of how to allocate regulatory authority between the institutions of the European Union and its member national governments in the area of corporate law.[22]

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[19] See William L. Cary, Federalism and Corporate Law: Reflections upon Delaware, 83 Yale L.J. 663 (1974).

[20] See, e.g., Ralph Winter, Jr., State Law, Shareholder Protection, and the Theory of the Corporation, 6 J. Legal Stud. 251 (1977); Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225-283 (1985); Frank H. Easterbrook & Daniel R. Fischel, The Economic Structure of Corporate Law 1-40 (1991); Lucian Arye Bebchuk, Federalism and the Corporation, 105 Harv. L. Rev. 1435 (1992); Roberta Romano, The Genius of American Corporate Law (1993).

[21] See, e.g., Marcel Kahan & Ehud Kamar, Price Discrimination in the Market for Corporate Law, 86 Cornell Law Review 1205 (2001); Leo Strine, Delaware's Corporate-Law System: Is Corporate America Buying an Exquisite Jewel or Diamond in the Rough? A Response to Kahan & Kamar's Price Discrimination in the Market for Corporate Law, 86 Cornell Law Review 1257 (2001); Sanjai Bhagat & Roberta Romano, Event Studies and the Law: Part II – Empirical Studies of Corporate Law, Yale ICF Working Paper No. 00-33 (2001); Stephen Choi & Andrew Guzman, Federalism and Shareholder Choice, 87 Virginia Law Review 111 (2001); Robert Daines, Does Delaware Law Improve Firm Value?, 62 Journal of Financial Economics 525 (2001); Lucian Bebchuk & Allen Ferrell, Federalism and Corporate Law: The Race to Protect Managers from Takeovers, 99 Colum. L. Rev. 1168 (1999); Lucian Bebchuk & Allen Ferrell, A New Approach to Takeover law and Regulatory Competition, 87 Virginia Law Review 111 (2001); Lucian Bebchuk & Allen Ferrell, Federal Intervention to Enhance Shareholder Choice, 87 Virginia Law Review 993 (2001); Jill Fisch, The Peculiar Role of the Delaware Courts in the Competition for Corporate Charters, 68 University of Cincinnati Law Review 1061 (2000); Ehud Kamar, A Regulatory Competition Theory of Indeterminacy in Corporate Law, 98 Colum. L. Rev. 1908 (1998).

[22] Two events have recently brought these issues to the forefront; the potentially sweeping decision of the European Court of Justice in the Centros case, see Case C – 212/97, on which country's corporate law governs a firm and the recent rejection of a proposed European directive on takeover regulation.

While most commentators agree that at least some states compete for incorporations,[23] as incorporations bring various benefits to states, there has been much debate concerning the effect (for better or worse) of regulatory competition in corporate law. The dominant view is the "race to the top" school of thought. Its supporters contend that the competition among states over attracting incorporations benefits shareholders.[24] Accordingly, Delaware, the dominant state for incorporations, has "won" the race for incorporations by being the most virtuous, i.e. offering rules that maximize shareholder wealth. Indeed one prominent "race–to-the-top" theorist has referred to state competition as the "genius of American corporate law."[25]

An alternative view, to which we subscribe, holds that state competition does not work well with respect to some (but not all) important corporate law issues.[26] On this view, state competition induces states to provide rules that managers, but not necessarily shareholders, favor with respect to corporate law issues that significantly affect managers' private benefits of control, such as rules governing takeovers. It has also been suggested that state competition leads Delaware to offer a body of law that is excessively unpredictable, thus creating unnecessary litigation.[27]

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[23] For recent works indicating that competition in this market is weaker than has been generally recognized, see Marcel Kahan & Ehud Kamar, Price Discrimination in the Market for Corporate Law, 86 Cornell Law Review 1205 (2001); Lucian Bebchuk & Assaf Hamdani, Vigorous Race or Leisurely Walk: Reconsidering the Debate on State Competition in Corporate Law (working paper, 2001) (on file with authors). As long as some competitive force is at work, however weak, the question arises whether (and when) it pushes states in a beneficial or undesirable direction.

[24] For further details on this position, see Ralph Winter, Jr., State Law, Shareholder Protection, and the Theory of the Corporation, 6 J. Legal Stud. 251 (1977); Roberta Romano, The Genius of American Corporate Law (1993); Frank H. Easterbrook & Daniel R. Fischel, The Economic Structure of Corporate Law 1-40 (1991).

[25] Roberta Romano, Genius of American Corporate Law (1993).

[26] See Lucian A. Bebchuk, Federalism and the Corporation: The Desirable Limits on State Competition in Corporate Law, 105 Harv. L. Rev. 1435 (1992); Lucian Bebchuk and Allen Ferrell, Federalism and Corporate Law: The Race to Protect Managers from Takeovers, 99 Colum. L. Rev. 1168 (1999); Lucian Bebchuk and Allen Ferrell, A New Approach to Takeover Law and Regulatory Competition, 87 Virg. Law Rev. 111 (2001); Oren Bar-Gill, Michal Barzuza and Lucian Bebchuk, A Model of State Competition in Corporate Law (working paper, 2001), available at SSRN; cf. William L. Cary, Federalism and Corporate Law: Reflections upon Delaware, 83 Yale L.J. 663 (1974).

[27] See Marcel Kahan & Ehud Kamar, Price Discrimination in the Market for Corporate Law Cornell Law Review (2001); Ehud Kamar, A Regulatory Competition Theory of

To shed light on this debate, researchers have undertaken a large number of empirical studies. The authors of these studies, as well as the corporate law scholars who have used the studies in their own work, have generally interpreted their findings as supporting the race-to-the-top view. Indeed, supporters of state competition have seized on these studies as strong – nay, decisive – evidence that state competition serves shareholder interests. For example, Roberta Romano has concluded that

> "[The findings of the empirical work] are *compelling* evidence that competition benefits investors."[28]

On a similar note, Frank Easterbrook and Daniel Fischel have stated:

> "Empirical studies confirm[ ] the force of competition. These findings [of the empirical literature] *fatally* undermine [the "race-to-the-bottom"] position . . ."[29]

This paper challenges this assessment of the evidence. We argue that the conclusions supporters of state competition have drawn from the empirical evidence are unjustified. In our view, interpreting the data in favor of state competition is *not*

Indeterminacy in Corporate Law, 98 Colum. L. Rev. 1908 (1998); cf. Jonathan R. Macey and Geoffrey P. Miller, Toward an Interest-Group Theory of Delaware Corporate Law, 65 Tex. L. Rev. 469 (1987).

[28] See Roberta Romano, The Need for Competition in International Securities Regulation, Yale Law School Research Paper No. 258 (2001), at 90 (emphasis added). Professor Romano has expressed similar views in other papers. See Roberta Romano, Empowering Investors: A Market Approach to Securities Regulation, 107 Yale. L. J. 2359 (1998) ("If a change in domicile increases firm value, it would be exceedingly difficult to maintain that charter competition is harmful to shareholders."), and Sanjai Bhagat & Roberta Romano, Event Studies and the Law: Part II – Empirical Studies of Corporate Law (working paper, 2001) ("One certainly cannot read the event study literature and conclude that firms reincorporating are reducing their shareholders' wealth, as [critics of the "race to the top" theory] contend").

[29] Frank Easterbrook & Daniel R. Fischel, The Economic Structure of Corporate Law 214-215 (1991) (emphasis added).

compelling but rather unwarranted. The existing evidence does *not* fatally undermine the criticisms of state competition, but rather leaves them unscathed.

Our position is supported by a new empirical approach to evaluating state competition and recent evidence generated by this method. This evidence indicates that competition rewards and encourages the amassing of antitakeover statutes by states. This new evidence calls into question the belief of supporters of state competition that state competition does not push states to adopt antitakeover statutes.

The skeptical account of state competition that we hold, and which we believe is entirely consistent with the empirical evidence, is as follows: Because managers have substantial influence over where companies are incorporated, a state wishing to maximize the number of corporations chartered in it will have to take into account the interests of managers. As a result, state competition pushes states to give significant weight to managerial interests.

Of course, catering to managerial interests is only problematic when the interests of shareholders and managers substantially diverge. Thus, on our account, state competition will likely fail with respect to issues that are "significantly redistributive" in that they involve a significant tradeoff between important managerial and shareholder interests. One area where such a divergence of interests is likely to be particularly acute is in the important area of takeover regulation. Managers interested in preserving their jobs and private benefits of control will tend to favor restrictive takeover rules, whatever the costs to shareholders.

Is the existing empirical evidence inconsistent with this skeptical account, as so many claim? Pursuing this question, Part II examines the significant body of empirical work that has sought to determine the effects of Delaware incorporation on shareholder value. This work includes a recent cross-sectional study that suggested that shareholder value is higher for Delaware companies than for non-Delaware companies, as well as reincorporation event studies that indicate that reincorporations to Delaware were accompanied by increases in stock price.

Part II closely examines the findings of both types of studies and show that, taken as a whole, they do not establish the general presence of a robust and significant association between Delaware incorporation and higher shareholder

wealth. Furthermore, even assuming that a robust and significant correlation between Delaware incorporation and somewhat higher shareholder value were present, supporters of state competition have failed to distinguish satisfactorily between correlation and causation; correlation of Delaware incorporation and higher stock value does not imply causation of higher stock value by Delaware incorporation. The selection of firms that incorporate in Delaware, either initially or mid-stream, is not random.

Firms electing to incorporate in Delaware and firms not making such elections must be different in some way that accounts for their different incorporation decisions. Whatever stock price effects are correlated with Delaware incorporations might very well be due not to the direct effects of Delaware incorporation but rather to these underlying differences. Indeed, we show that there is evidence that selection effects are likely to be very much at work, and that inferences about the relative value of Delaware law cannot be reliably inferred from existing findings on correlations between Delaware incorporation and shareholder value.

Although we conclude in Part II that the existing evidence fails to demonstrate that Delaware incorporation increases shareholder value, we do believe that it is reasonable to assume that Delaware incorporation on average benefits investors, even if in a rather small and limited way. As Part III explains, however, a marginal superiority of Delaware incorporation for shareholder value does not imply that state competition (as currently structured) benefits investors. Indeed, the presence of such a marginal superiority would be entirely consistent with our skeptical account of state competition.[30]

On our view, the incentive to cater to managerial interests, and in particular to protect managers excessively from takeovers, is present for all states that wish to attract incorporations. Consequently, all such states will be similarly pushed in an undesirable direction. In such an equilibrium, Delaware incorporation might still provide some benefits to shareholders due to Delaware's well-developed legal

[30] This point is formally demonstrated in a model developed in Oren Bar-Gill, Michal Barzuza and Lucian Bebchuk, A Model of State Competition in Corporate Law (working paper, 2001), available at SSRN.

infrastructure and to network externalities. In such an equilibrium, however, the corporate regimes that states would adopt would nevertheless be adversely shaped by state competition.

The critical question to resolve, as Part III will emphasize, is whether the existing state competition equilibrium is superior to the set of corporate rules that would prevail in the quite different equilibrium that would obtain in the absence of the current form of state competition. This question should not be confused, as supporters of state competition seem to have done, with the question of whether Delaware is somewhat better than other states in the existing state competition equilibrium.

Part IV turns from these general considerations to consider the concrete case of state takeover regulation and what it can tell us about how state competition works in this important area. Besides its importance, state takeover regulation is an interesting case study as it presents state competition supporters with a dilemma. The dilemma lies in the fact that many supporters of state competition believe that existing state takeover law restricts corporate takeovers excessively. They have therefore been forced to reconcile this belief with their view that state competition produces desirable corporate law. To this end, they have made empirical claims that state competition has not contributed to the proliferation of antitakeover statutes but rather rewarded those states that have been comparatively moderate. Delaware, by far the most successful state in the incorporation marketplace, is usually cited as the paradigm of a state having a "moderate" takeover regime.

Part IV shows, however, that the empirical claims made by supporters of state competition fail to establish that state competition rewards moderation in the provision of antitakeover protections. First, although Delaware does not go as far as some states that have adopted extreme antitakeover statutes, it is far from clear that Delaware is relatively more moderate than most states in its antitakeover stance. Second, the studies conducted by researchers with respect to states adopting extreme antitakeover statutes (Massachusetts, Ohio, and Pennsylvania) do indicate that the adoption of these statutes have been detrimental to shareholder value, but they do not show that the incorporation marketplace has penalized these three states by reducing

the number of incorporations in them. Whether these states have been in fact harmed or benefited by their adoption of extreme antitakeover protections in the incorporation marketplace is a question Part V addresses.

Part V puts forward a new, and we believe promising, approach to the empirical investigation of state competition. Researchers and corporate law scholars should seek to identify the determinants of firms' incorporation choices. While prior work has largely taken incorporation choices as given, and has sought to identify how those incorporation decisions were associated with shareholder value, the proposed approach attempts to identify the factors that determine and motivate these incorporation decisions. Furthermore, whereas prior work has largely ignored the considerable variance among states other than Delaware in their relative success in the incorporation market, we argue that this variance can be used to examine how the different legal regimes offered by states affect firms' incorporation decisions. We present some summary statistics and basic cross-state comparisons that illustrate the value of this approach. A separate study by two of us (the Domicile Decisions Study) has carried out a full empirical analysis based on this approach, which Part V will summarize and discuss.[31]

As Part V will describe, the analysis of domicile decisions reveals that the competition for incorporations does in fact reward the amassing of antitakeover protections. At one end of the spectrum, states with no antitakeover statutes, such as California, do quite poorly, retaining a relatively small fraction of the companies headquartered in them and attracting a small or even negligible number of out-of-state companies. At the other end of the spectrum, the states that are quite successful on these two dimensions are generally ones that have amassed most if not all of the standard antitakeover statutes. More generally, the success of a state in the market for incorporations increases with the level of antitakeover protection the state

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[31] See Lucian Bebchuk and Alma Cohen, Firms' Decisions Where to Incorporate (working paper, 2001) available on www.ssrn.org.

Another contemporaneous study which applies this approach, and whose results we discuss, is Guhan Subramanian, The Influence of Antitakeover Statutes on Incorporation Choice: Evidence on the 'Race' Debate and Antitakeover Overreaching (working paper, 2001) (on file with authors).

provides (controlling, of course, for company characteristics and for the characteristics of states other than their takeover laws).

Interestingly, the evidence does not show that, as supporters of state competition believe, the incorporation market penalizes states that adopt extreme antitakeover statutes, as Massachusetts, Ohio, and Pennsylvania have done. Although the adoption of these statutes were accompanied by a significant reduction in the stock value of corporations incorporated in these states, as well as being universally criticized, these statutes have not hurt these states in the incorporation market. We do no doubt that there is some level of extreme antitakeover protection that would "over-do it" and make a state adopting it less attractive for incorporators. However, in contrast to the beliefs of state competition supporters, this level has apparently not been reached by Massachusetts, Ohio, and Pennsylvania, the three states blacklisted by scholars as extreme.

The study of the determinants of domicile decisions can thus shed a more systematic light on the connection between state competition and takeover rules. Competition appears to reward, and thus encourage, the amassing of antitakeover statutes. It is therefore difficult to maintain, as many supporters of state competition have done, both that (i) state competition generally rewards the provision of rules that enhance shareholder value, and (ii) amassing antitakeover protections will restrict takeovers excessively and hurt shareholder value. At least one of these two propositions is in need of revision.

Part VI concludes that, in contrast to the long and strongly held beliefs of race-to-the-top scholars, the evidence does not favor state competition; rather it is consistent with, and in certain ways supports, the view that is skeptical of how state competition, at least as currently structured, performs with respect to certain important corporate law subjects. This conclusion has significant implications for the ongoing debates over state competition, corporate governance, and takeover law.

II. Does Delaware Incorporation Increase Shareholder Value?

Researchers have tried to test whether Delaware law is superior by identifying how, compared with firms located in other states, incorporation in Delaware affects stock price, Tobin's Q,[32] or some other metric associated with shareholder wealth. We will examine these studies and see what they can tell us.

We will begin by discussing, in Part II.A, Robert Daines' influential paper measuring and comparing the Tobin's Q of Delaware and non-Delaware firms.[33] Part II.B will then look at reincorporation event studies, which measure stock price reaction to a firm's reincorporation from one state to another. In the course of discussing these studies, we will highlight some of the problems with accepting their findings at face value. With respect to some of these studies, their findings are weaker and more inconclusive than has been generally recognized. More importantly, both reincorporation event studies and Daines' Tobin's Q study suffer from a failure to establish that their findings of increased value for Delaware firms, whatever the metric being used, should be attributed to Delaware providing a superior corporate law system. It is crucial in assessing these studies to always remember that incorporation and reincorporation decisions are not random occurrences; there is thus no good basis for inferring that the measured differences in shareholder wealth are due to differences in corporate law quality as opposed to whatever influences firms' (re)incorporation decisions.

A. Tobin's Q Differences Between Delaware and Non-Delaware Corporations

1. The Correlation Findings: Questions of Robustness and Magnitude

Recognizing the limitations of reincorporation event studies, which we will discuss shortly, Robert Daines sought to test the effect of Delaware incorporation on shareholder wealth in a different way. In a recent but already influential study, he

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[32] See Richard A. Brealey & Stewart C. Myers, Principles of Corporate Finance 775-776 (1996) (explaining Tobin's Q).

[33] See Robert Daines, Does Delaware Law Improve Firm Value?, 62 Journal of Financial Economics 525 (2001).

compared Delaware and non-Delaware companies in terms of Tobin's Q.[34] Tobin's Q, which is the ratio between a firm's market value and its book value, is a widely used measure of how valuable a firm's assets are. Daines found that, looking at the aggregate data from 1981-1996, Delaware companies had a higher Tobin's Q even after controlling for a variety of factors. He inferred from this finding that Delaware law accounts for the higher Tobin's Q and, therefore, acts to increase shareholder value.

However, other studies have found that the reported correlation between Delaware incorporation and a higher Tobin's Q is not a consistent phenomenon. The Domicile Decisions Study, examining data from the end of 1999, found that there was no correlation between Delaware incorporation and higher Tobin's Q for this period.[35] Furthermore, Guhan Subramanian reports that his work in progress found that any correlation largely disappears after 1996.[36] Finally, another recent study, using a set of controls that includes firm-level corporate governance arrangements, found that during the 1990's Delaware incorporation was, on average, associated with a *lower* Tobin's Q.[37]

Indeed, the regressions in Daines' study itself indicate that the positive correlation, using industry-adjusted Tobin's Q, did not exist in a significant number of years throughout the period he studied.[38] There were five years during this period (1982, 1987, 1989, 1991, 1995) in which there did not exist any statistically significant correlation between Delaware incorporation and Tobin's Q. In an

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[34] See id.

[35] See Lucian Bebchuk and Alma Cohen, Firms' Decisions Where to Incorporate (working paper 2001), available at www.ssrn.com.

[36] See Guhan Subramanian, The Influence of Antitakeover Statutes on Incorporation Choice: Evidence on the 'Race' Debate and Antitakeover Overreaching, footnote 70 (November 2001 draft) (on file with authors).

[37] See Paul A. Gompers, Joy L. Ishii and Andrew Metrick, NBER Working Paper No. 8449 (August 2001). Specifically, they find that Delaware incorporation tended to be positive correlated at the beginning of the studied period and negative toward the end, with an average coefficient that was negative and significant.

[38] See Robert Daines, Does Delaware Improve Firm Value, 62 J. of Fin. Econ. 525, 535 Tbl. 3 (annual estimates).

additional year (1996), the statistical significance of the correlation was only at the 90% level.[39]

2. The Serious Problem of Selection

Consider a period in which Delaware incorporation is correlated with a higher Tobin's Q. Does this imply that Delaware incorporation caused a higher Tobin's Q? There is the fundamental question of whether the relationship between Delaware incorporation and a high Tobin's Q (or a positive abnormal price reaction in the case of reincorporation event studies) is one of causation or mere correlation. Does Delaware law cause Delaware firms to have a high Tobin's Q or do companies choosing to incorporate in Delaware tend to have a higher Tobin's Q?

If incorporation and reincorporation decisions were random, and if we could therefore safely assume that Delaware and non-Delaware firms are identical other than their state of incorporation, then differences in Tobin's Q would arguably be attributable to Delaware's superior corporate law regime. But if incorporation and reincorporation decisions are not random, and if firms that incorporate in Delaware are thus systematically different from firms that choose not to, then the differences in Tobin's Q could just as well result from those systematic differences. Below we discuss why there is every reason to believe that the selection of firms incorporated in Delaware is anything but random.

A. Selection Follows from Daines' own Interpretation

If Daines' interpretation of his findings is correct, it necessarily follows that Delaware and non-Delaware firms differ in some systematic way besides their state of incorporation. Otherwise, why didn't all companies move to Delaware? Consider a period in which a move to Delaware could produce a 5% increase in value for

[39] The same basic picture emerges if one uses Tobin's Q unadjusted by industry. There were four years in which there did not exist any statistically significant correlation between Delaware incorporation and (an unadjusted) Tobin's Q and one additional year in which the statistical significance of the correlation was only at the 90% level. Id. at Tbl. 3.

companies incorporated in other states.[40] Why did some firms choose to leave so much money on the table, money they could easily have collected by simply incorporating in Delaware? There must have been something different about these firms, something significant enough to cause them to forego an easy increase in firm value. Perhaps the difference was in managerial quality, or agency costs, or firm strategy. Whatever it was, this difference must have been significant enough to cause non-reincorporating firms to forgo an easy and significant increase in firm value. It follows that there must have been some substantial, and unaccounted for, differences between Delaware and non-Delaware firms. Once such differences are admitted, however, there is a real possibility that they, rather than the purported benefits of Delaware incorporation, account for whatever differences in value exist, at any point in time, between Delaware and non-Delaware companies.

It is true that Daines' study makes a considerable effort to control for all the parameters that he could control for, such as the type of business a firm engaged in and firm size. But notwithstanding Daines' impressive effort to control for as many parameters as possible, it nonetheless remains true that if in a group of seemingly identical firms, some firms incorporate in Delaware and some do not, there *must* be some omitted variables that produce this differential behavior. This is all the more true if it is supposed that one choice produces a substantial increase in firm value and the other does not.

The presence of such variables is clearly suggested by the results of the Domicile Decisions Study. Using the Compustat database that Daines also used, this study sought to identify which characteristics make companies more or less likely to incorporate in Delaware. It found, for example, that larger and newer companies are more likely to incorporate in Delaware. For our purposes, however, the crucial point is that the study's regressions, controlling for various company characteristics (which Daines also controlled for) including the industry in which firms operate and firm size, had an explanatory power of only 13% for the decision whether to incorporate

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[40] This is based on the estimate provided by Daines' study for the value-added of Delaware law given the pooled sample estimates. Id. at Tbl. 3. As will be discussed, the value-added identified by the study fluctuates dramatically over time.

in Delaware.[41] This clearly suggests the importance of omitted variables in explaining why some firms but not others choose Delaware incorporation.[42]

B. Selection and the Fluctuations of the "Delaware Effect"

Tellingly, even in the years in which there was a correlation, the magnitude of the correlation varied dramatically from year to year. For instance, Daines' regressions indicate that (controlling, of course, for other characteristics) Delaware companies had a Tobin's Q in 1986 that was 12% higher (at the 99% confidence level) than that of non-Delaware companies. In the subsequent year, 1987, however, the increase in Tobin's Q associated with Delaware incorporation was only 5%, which was statistically insignificant from zero. To take another example, in 1991 the increase in Tobin's Q associated with Delaware incorporation was 4%, also, not statistically significant from zero, while in 1992, that figure suddenly increased to 12% (at the 99% confidence level).[43]

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[41] See Lucian Ayre Bebchuk & Alma Cohen, Firms' Decisions Where to Incorporate.

[42] It is worth commenting also on another interesting attempt by Daines to isolate his findings from the selection effect. He tries to do so by estimating the difference in Tobin's Q only between mature Delaware and mature non-Delaware firms on the theory that a firm's current valuation is unrelated with its valuation years ago. He also estimates the difference in Tobin's Q between Delaware and non-Delaware firms controlling for the prestige of the firm's underwriter at the time of its IPO, assuming that this prestige is correlated with the firm's quality and value. These tests still show a correlation between Delaware incorporation and a higher Tobin's Q.

But these test do not solve the selection problems for two reasons. First, the finding that otherwise identical firms, as captured also by their choice of an underwriter or maturity, make different choices on whether to incorporate in Delaware still raises the same type of questions. Once again, why the difference in incorporation choices if the firms really are identical, unless one believes that incorporation choices are random? And why are underwriters with similar prestige sometimes associated with Delaware incorporation and sometimes with non-Delaware incorporation, which are value-reducing?

Second, these tests cannot in any event address selection effects that occur after incorporation. We know that some type of selection among firms must be occurring because of the non-random nature of reincorporation decisions. Controlling for decisions made at the time of incorporation does not control for the type of decisions that have been made since that time, whether this is a decision to reincorporate or a decision not to reincorporate. Firms' current state of incorporation, the firms whose Tobin's Qs are being measured, will reflect these post-incorporation decisions.

[43] Id. at Tbl. 3.

These huge fluctuations from year to year are deeply puzzling if one takes the view that differences in value between Delaware and non-Delaware companies are the result of the benefits of Delaware law. In order for Daines' attribution of the differences in Tobin's Q to the superiority of Delaware's corporate law regime to be plausible, there must have been groundbreaking legal changes in Delaware corporate law that occurred during these years that can account for these fluctuations. It is hard to imagine what these would be. Whatever the benefits of Delaware's legal regime and thus of Delaware incorporation, they must be more stable than that.

These fluctuations are much easier to explain with a selection story. Under this story, Delaware companies are significantly different in some underlying features – they are of a different "type" – than non-Delaware firms. And it is not unusual in the stock market for the relative pricing of firms of different types to fluctuate considerably from year to year.

C. The Magnitude of the "Delaware Effect"

There is an additional reason, aside from the fluctuations, to suspect that something else is affecting firm value besides differences in the quality of state corporate regimes. As just discussed, Daines' findings indicate that the increase in firm value correlated with Delaware incorporation is very large in some years. Indeed, the increase in value associated with Delaware incorporation exceeded 10% in five out of the eleven years in which such correlation was found to exist at the 95% confidence level.[44]

Although we strongly believe that corporate law does matter, it is hard to believe that the legal regimes of states within the U.S. differ to an extent that can produce such huge differences in share value. To be sure, Delaware incorporation might produce such an increase in value (and even more) when compared with, say, incorporation in Russia. Even the greatest fans of Delaware law, however, would not envision it producing such huge increases in value when compared with incorporation in other states. As will be stressed in Part III, the corporate regimes of

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[44] Robert Daines, Does Delaware Improve Firm Value, 62 J. of Fin. Econ. 525, 535 Tbl. 3.

states share fundamental similarities. On the other hand, such differences in Tobin's Q are consistent with a selection story. The firms that tend to incorporate in Delaware might be ones with a substantially higher firm value.

D. Understanding Selection

There are various explanations that could account for why firms that have the same Compustat data characteristics make different incorporation and reincorporation decisions. Consider, for example, the following scenario.[45] Law firms centered in national financial centers such as New York City might tend to prefer Delaware incorporation. And companies that use such law firms for their counsel might be persuaded or influenced to incorporate in Delaware. It is possible that these companies may be more likely to have sophisticated and ambitious managers or have some other quality that operates to increase firm value. Of course, this scenario, based on managerial heterogeneity, is only one possible explanation and others might actually capture what is really going on.

Discovering what influences companies' incorporation decisions is an area in need of empirical work. Until such studies are available and we know a great deal more about how firms make incorporation decisions, we cannot rule out any number of possibilities, such as the one just suggested. Moreover, without an explanation for how firms make their selection decisions, the attribution of differences in firm value to differences in corporate regimes will remain questionable.

B. Event Studies of Reincorporations

A number of studies have examined stock price reaction to changes in a firm's state of incorporation. The overwhelming majority of the firms examined by these studies -- as is true with reincorporating firms as a general matter --

[45] This story is suggested in Lucian Bebchuk and Allen Ferrell, A New Approach to Takeover Law and Regulatory Competition, 87 Virginia Law Review 111, 137-138 (2001).

reincorporate to Delaware.[46] The reincorporation studies are by far the most commonly cited evidence for the proposition that Delaware corporate law increases shareholder wealth. Such studies, for instance, were largely the basis for the views of Professors Easterbrook, Fischel and Romano quoted earlier.[47]

Putting aside some general issues one might raise concerning the basic methodology underlying event studies,[48] what conclusions should we draw from these reincorporation studies? Subsection one will emphasize that in answering this question one should bear in mind the flaws in some of these event studies and that the documented positive abnormal returns associated with reincorporations are, on the whole, quite modest. Subsection two will then argue that there is no firm basis for attributing these modest positive abnormal returns to the superiority of Delaware's corporate law regime.

1. The Abnormal Returns Findings: Questions of Robustness and Magnitude

There have been eight reincorporation event studies. Overall, the picture that emerges is one of modest gains accompanying reincorporation. Six of the eight studies documented positive abnormal stock returns associated with the reincorporating firms in the sample.[49] The remaining two found negative abnormal returns associated with reincorporations; one found negative returns associated with

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[46] See Sanjai Bhagat & Roberta Romano, Event Studies and the Law: Part II – Empirical Studies of Corporate Law 3 (unpublished manuscript on file with authors) (2001); Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225-283 (1985).

[47] See supra Part I.

[48] See generally, John Rumsey, Comment, The Market Model and the Event Study Method: A Synthesis of Econometric Criticisms, 5 Int'l Rev. Fin. Analysis 79 (1996).

[49] See Jianghong Wang, Performance of Reincorporating Firms, (unpublished manuscript on file with authors) (Yale School of Management 1995); Jeffrey Netter, & Annette Poulson, State Corporation Laws and Shareholders: The Recent Experience, 18 Financial Management 29-40 (1989); Michael Bradley and Cindy A. Schipani, The Relevance of the Duty of Care Standard in Corporate Governance, 75 Iowa Law Review 1-74 (1989); Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225-283 (1985); Peter Dodd and Richard Leftwich, The Market for Corporate Charters: Unhealthy Competition v.s. Federal Regulation, 53 Journal of Business 259-283 (1980); and Allen Hyman, The Delaware Controversy—The Legal Debate, 4 Journal of Corporate Law 368-398 (1979).

the entire sample,[50] while the other found negative returns associated with a subgroup of the reincorporating firms.[51] Pooling the results from all eight studies, the weighted average price reaction to reincorporation is +1.28%.[52] Even accepting this finding at face value, the positive abnormal return attributable to Delaware's superior corporate law regime is rather small in magnitude. Before drawing any firm conclusions, however, it is first worth taking a closer look at these event studies.

The two earliest reincorporation event studies used problematic methodologies that led subsequent work to view their results as unreliable.[53]

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[50] Randall A. Heron and Wilbur G. Lewellen, An Empirical Analysis of the Reincorporation Decision, 33 Journal of Financial and Quantitative Analysis 549-568 (1998).

[51] Pamela Peterson, Reincorporation Motives and Shareholder Wealth, 23 Financial Review 151 (1988).

[52] Returns are weighted by their sample size. In taking pooled average price reactions, we follow John C. Coates, Takeover Defenses in the Shadow of the Pill: A Critique of the Scientific Evidence, 79 Texas Law Review 271, 283 (2000) and Michael C. Jensen & Richard S. Ruback, The Market for Corporate Control: The Scientific Evidence, J. Fin. Econ. 5, 12-13 (1983).

[53] In the first study, See Allen Hyman, The Delaware Controversy—The Legal Debate, 4 Journal of Corporate Law 368 (1979), Allen Hyman did find positive abnormal returns for reincorporating firms for four of the five trading days prior to the public announcement of reincorporation. But this does not tell us whether there were positive abnormal returns associated with the reincorporation announcement itself, the relevant date. Whether statistically abnormal returns for the sample occurred over a period spanning both the five days before and after the announcement day itself is unreported. On a similar note, the study does not tell us whether there was positive abnormal returns associated with the period spanning one day immediately before and after the announcement date, a commonly used time-frame for reincorporation studies. These concerns are heightened by the fact that abnormal returns were determined by reference to the performance of the Standard and Poor index, a highly unorthodox, and unreliable, methodology.

The second reincorporation event study, by Peter Dodd and Richard Leftwich, examined a sample of 140 publicly traded companies that reincorporated between 1927 and 1977. See Peter Dodd and Richard Leftwich, The Market for Corporate Charters: Unhealthy Competition v.s. Federal Regulation, 53 Journal of Business 259 (1980). The study did find statistically significant positive abnormal returns, but it used an interval of *two years* before the reincorporation date. Such an extended study period sheds little light on the effect of reincorporation. It is generally true that using an interval of a few days or weeks around an event, rather than just the day of the event itself, can still do a good job of capturing the effects of the event. However, this is not true for a two-year interval. See, e.g., Warner, Measuring Long-Horizon Security Price Performance, 43 J. Fin. Econ. 301, 301 & 337 (1997) (finding that tests of multi-year abnormal returns around firm-specific events are "severely mis-specified" and concluding that "the interpretation of long-horizon tests requires extreme caution."); Brad M. Barber & John D. Lyon, Detecting Long-Run Abnormal Stock Returns: The Empirical Power and Specification of Test Statistics, 43 J. Fin. Econ. 341, 342-43 (1997) (also finding that long-run tests are mis-specified and identifying new listing bias, rebalancing bias, and skewness bias as reasons).

Following these two initial studies, six subsequent studies used more standard and reliable methodologies. These six studies, summarized in the table below, present a rather mixed picture.[54] Roberta Romano's study, the earliest and most influential of the six, found a positive abnormal return of 4.18%.[55] However, three subsequent studies found abnormal returns in the vicinity of 1%, and two such studies, including the latest event study which used the largest sample size, did not find an abnormal return that differed from zero in a statistically significant way.[56]

Authors	Abnormal Return	Sample Size
Romano (1985)	4.18%	150
Peterson (1988)	.27%	30
Bradley & Schipani (1989)	1.04%	32
Netter & Paulson (1989)	.93%	36
Wang (1995)	.97%	145
Heron & Lewellen (1998)	-.15%	294

Thus, a 1% positive abnormal return is probably as fair a measure as any *if* one were inclined to rely on these event studies as measuring the effect of

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[54] See Randall A. Heron and Wilbur G. Lewellen, An Empirical Analysis of the Reincorporation Decision, 33 Journal of Financial and Quantitative Analysis 549-568 (1998); Jianghong Wang, Performance of Reincorporating Firms, (unpublished manuscript on file with authors) (Yale School of Management 1995); Jeffrey Netter, and Annette Paulson, State Corporation Laws and Shareholders: The Recent Experience, 18 Financial Management 29-40 (1989); Michael Bradley and Cindy A. Schipani, The Relevance of the Duty of Care Standard in Corporate Governance, 75 Iowa Law Review 1-74 (1989); Pamela Peterson, Reincorporation Motives and Shareholder Wealth, 23 Financial Review 151 (1988); Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225-283 (1985).

[55] See Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225-283 (1985).

[56] See Pamela Peterson, Reincorporation Motives and Shareholder Wealth, 23 Financial Review 151 (1988); Randall A. Heron and Wilbur G. Lewellen, An Empirical Analysis of the Reincorporation Decision, 33 Journal of Financial and Quantitative Analysis 549-568 (1998). The usefulness of the latter study might be limited by the fact that it is only able to generate statistically significant results based on the motivation behind the reincorporation when the shareholder meeting date, rather than the proxy mailing date, is used. See Roberta Romano, The Need for Competition in International Securities Regulation, at 113-115.

reincorporation to a superior corporate law regime.[57]Accordingly, even if the positive abnormal stock price reaction is entirely due to the benefits of Delaware incorporation, these benefits appear to be rather modest.[58] For instance, the adoption of confidential voting, which is usually not considered a significant change, has a reported positive abnormal return of approximately 1%.[59]

But should one attribute the entire positive abnormal return found in these event studies to the superiority of Delaware incorporation?

2. The Serious Problem of Confounding Events

A. The Problem

If the subset of firms reincorporating at any point in time were a random selection from the universe of all corporations, it would follow that unaccounted for increases in a reincorporating firm's stock price on the date the news of reincorporation reached the market could reasonably be attributed to Delaware's superior corporate law.[60] The randomness would help ensure that firm-specific characteristics were not affecting stock price.

However, there is good reason to believe (as was also the case when considering Daines' Tobin's Q study) that reincorporation decisions are not random, but rather are associated with or produced by specific events or occurrences, a phenomenon we will refer to as "confounding events". As a result, any findings of positive abnormal returns could well be the result not of investors' anticipation of moving to a better legal regime but rather of investors' reactions to these confounding events. The need to disentangle various effects is a generic problem that arises with the use of event studies in the field of corporate law, but its

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[57] The pooled weighted average abnormal return of these six studies is 1.16%.

[58] We do recognize, of course, that a 1% increase in firm value can still be quite meaningful in terms of the dollars at stake.

[59] John C. Coates, Takeover Defenses in the Shadow of the Pill: A Critique of the Scientific Evidence, 79 Texas Law Review 271, 284 (pointing out positive abnormal return of adopting confidential voting is .9234%).

[60] See Greene, Econometric Theory (Third Ed.)

importance varies from one context to another.[61] In the case of corporate reincorporations, the presence of confounding events is a real issue that must be confronted because reincorporation decisions are clearly not random. Only some firms elect to reincorporate, and they choose to do so at a particular point in time. Thus, some event, perhaps the receipt of new information concerning the corporation or a new firm strategy, must underlie the decision of the managers of a minority of companies to pursue reincorporation to a particular state at a specific point in time. Investors could very well revise their estimates of a company's value in light of such an event, if the event is observable, or in light of the inference that such an event might have occurred, if the event is not observable. Either way, reincorporations are likely to be accompanied by investors revising their estimates of the value of reincorporating companies for reasons that have nothing to do with differences in legal regimes.

Indeed, a close examination of the reincorporation event studies confirms the view that confounding events are significant and have a considerable effect on documented returns. Most of the studies indicate reasons for believing that reincorporations are the product of significant selection effects and were accompanied by certain events (which could have caused revised valuation) or were followed by certain events (and thus could have been viewed by investors as signal that such events might indeed follow).

For example, in Romano's well-known study, in the portion of the study preceding her measurement of stock price reactions to reincorporations, Romano found that "most reincorporations preceded or coincided with a series of distinct and identifiable transactions,"[62] and that "the most plausible explanation of the reincorporation phenomenon is that corporations planning to engage in specific

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[61] For instance, an important issue in corporate finance is the effectiveness of event studies in identifying the underlying sources of the gains that occur as a result of corporate mergers. See Gregor Andrade, Mark Mitchell, and Erik Stafford, New Evidence and Perspectives on Mergers, 15 Journal of Economic Perspectives 103, 117 (2001).

[62] See Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 250 (1985). Professor Romano reports that 72% of reincorporations between 1960 and 1982 were associated either with a public offering of stock, mergers, or adoption of antitakeover defenses. Roberta Romano, Genius of American Corporate Law 33 (1993).

activities consider the choice of domicile important."[63] Such findings are consistent with the view that reincorporations are not random, and that the returns accompanying reincorporations reflect investors' reactions to events that partly coincide with, and partly might be inferred from, the reincorporation decisions.

In Romano's study, of the study's sample of 150 reincorporations, 63 were associated with an active merger and acquisitions program by the firms in question.[64] The adoption of such programs is known to be associated with positive abnormal returns.[65] Below we will discuss two other types of confounding events stories that seem plausible in light of the evidence. Each one of them could well have been present in some significant fraction of reincorporations, and could explain why, even if firms do not on average benefit from moving to Delaware's legal regime, reincorporations were accompanied by increases in company value. We do not mean this list of types of confounding events to be exhaustive; others might well have taken place.

B. Scheduling Reincorporation Votes in Relatively Good Times

Managers interested in reincorporation might well prefer bringing reincorporation proposals to a shareholder vote when things are going well for the company or at least not going poorly. Managers are more likely to receive shareholder approval for a proposal if shareholders are content with how the company is doing overall. Managers, as they have a great deal of flexibility in terms of when a reincorporation proposal will be brought before shareholders, can time, at least to a significant extent, shareholder votes to coincide with good times.

Thus, it might be that, on average, managers bring proposals to reincorporate when news about the company's performance released at that time, or news expected to be released by the time of the vote, is better than average. Indeed, to produce an

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[63] Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 250, 261 (1985).

[64] Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 250, 268 (1985).

[65] See Schipper and Thompson, Evidence on the Capitalized Value of Merger Activity for Acquiring Firms, 11 Journal of Financial Economics 85 (1983).

average positive stock price effect, it would be enough merely that managers avoid pursuing reincorporations at times when particularly bad news about the company is revealed. In short, according to this story, reincorporations may generally be accompanied by an upward revision in investors' valuations because investors on average receive or expect to receive before too long better than average news.

The story that managers time reincorporation votes to take place when things are going better than average sits well with a pattern established by the reincorporation event studies. As Michael Bradley and Cindy Schipani explain, "[F]irms choose to reincorporate in Delaware *after* they have experienced an abnormal run-up in their stock price."[66] Consistent with this observation, the Dodd and Leftwich reincorporation event study discussed earlier found, both for the entire sample of reincorporating firms as well as firms for which they had accurate reincorporation announcement dates, that most of the abnormal returns reincorporating firms experience occurred well before the event date. The same finding was subsequently reproduced in both Romano's 1985 event study[67] and Bradley and Schipani's 1989 event study.[68] This pattern is consistent with the view that the findings reported by the reincorporation event studies lump together abnormal returns that lead to or influence the timing of the reincorporation decision, and which could well continue to be present at the time of the reincorporation announcement, with abnormal returns that should be attributed to the reincorporation announcement itself, shorn of any confounding events.

Furthermore, the Heron and Lewellen reincorporation event study report that a significant number of reincorporations in the study's raw data set had substantial coincident events such as dividend increases. Whereas Heron and Lewellen excluded these reincorporations from the sample they studied, other studies did not likewise attempt to exclude companies that increased their dividends (or had other coincident

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[66] Michael Bradley and Cindy A. Schipani, The Relevance of the Duty of Care Standard in Corporate Governance, 75 Iowa L. Rev. 1, 67 (1989) (emphasis added).

[67] Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225-283 (1985).

[68] Michael Bradley and Cindy A. Schipani, The Relevance of the Duty of Care Standard in Corporate Governance, 75 Iowa L. Rev. 1, 67 (1989). Bradley and Schipani found that the cumulative average return between thirty and ten days before the mailing of the reincorporation proxy materials was 6.17%.

events) at the same time that they announced their plan to reincorporate, which might explain why these studies found higher positive abnormal returns associated with reincorporation than the Heron and Lewellen study.

C. Increased Likelihood of Takeover

A second plausible confounding events story centers on takeover defenses. As the reincorporation events studies indicate, a significant number of reincorporations are motivated by antitakeover considerations. Reincorporating companies often candidly admit that antitakeover considerations are a motive for seeking reincorporation.[69] When investors suspect or are told that a company is moving for such reasons, they will adjust their valuations of the company not only by (i) the direct effect of the company being subject to a different state takeover regime, but also (ii) the increased probability, inferred from the managers' focus on antitakeover considerations, of the company being a target.

Factor (ii) is generally good news and thus can be expected to have a positive effect on stock prices. Thus, the presence of factor (ii), according to this story, implies that the reported positive abnormal returns documented in reincorporation event studies represent an upward biased estimate of the effect of moving companies to a different state takeover regime. Even if it were the case that factor (i) has a sufficiently large negative effect on stock prices so that all the antitakeover-motivated reincorporations are accompanied by a negative abnormal return, this negative abnormal return would still be an upward biased estimate of the lower return caused by (i) alone. And this upward bias in the documented returns for part of the reincorporation sample biases upward, of course, average results for the sample as a whole.

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[69] See, e.g., Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225, 249-261 (1985); Randall A. Heron and Wilbur G. Lewellen, An Empirical Analysis of the Reincorporation Decision, 33 Journal of Financial and Quantitative Analysis 549, 553 (1998).

D. Different Reincorporation Categories

Consistent with the significance of confounding events, two recent studies found that the abnormal returns reincorporating firms experience vary depending on the announced motivation for the firm's decision to reincorporate. Heron and Lewellen found that reincorporations motivated by a desire to erect takeover defenses were accompanied by statistically significant negative abnormal returns.[70] In contrast, reincorporations motivated by a desire to limit directors' liability resulted in positive abnormal returns.[71] Peterson's reincorporation event study also documented different abnormal returns depending on what the announced motivation for reincorporation was.[72] If the motivation for the reincorporation was defensive in nature, the abnormal return was -.16%, while other reincorporations experienced a positive abnormal return of .65%

The 1985 study by Romano broke down reincorporations into three groups – reincorporations that seemed motivated by mergers and acquisition programs, reincorporations that seemed motivated by antitakeover considerations, and a miscellaneous group consisting of all the remaining reincorporations. She found that each of the three groups had a substantially different average abnormal return but that the variance of the three associated abnormal returns was not statistically significance.[73]

In recent papers, Sanjai Bhagat and Roberta Romano argue, based on Romano's 1985 study, that confounding events do not influence the returns reported in the event studies literature.[74] Bhagat and Romano interpret the lack of statistical significance for differences between the three groups as evidence that "significant

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[70] Randall A. Heron and Wilbur G. Lewellen, An Empirical Analysis of the Reincorporation Decision, 33 Journal of Financial and Quantitative Analysis 549-568 (1998).

[71] Id. at 550 & 557 Tbl. 5.

[72] Pamela Peterson, Reincorporation Motives and Shareholder Wealth, 23 Financial Review 151 (1988).

[73] Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 Journal of Law, Economics, and Organization 225, 272 (1985). Professor Peterson's study, which also found different abnormal returns across subgroups of reincorporating firms, did not test the statistical significance of the returns' variance.

[74] See, e.g., Sanjai Bhagat & Roberta Romano, Event Studies and the Law: Part II – Empirical Studies of Corporate Law, Yale ICF Working Paper No. 00-33. at 4 (2001).

positive returns upon reincorporation are due to investors' positive assessment of the change in legal regime, and not a confounding of the impact of reincorporating firms' other future projects."[75] But this inference, which the 1985 study did not make, is unwarranted.

To start, such an inference would overlook the different findings reached by more recent studies. Perhaps more importantly, Romano's 1985 testing was not designed to address the confounding events issue. The testing was done to examine whether reincorporations with different motivations had different effects on stock market values. Tests for confounding events should focus on all the information that was publicly known at the time of the reincorporation, and the information on which Romano's 1985 study relied differed from this category of information in two significant ways. First, Romano's analysis used for the classification information that was not publicly known at the time of the reincorporation, such as public information subsequently disclosed about acquisitions in the year following the reincorporations and the information disclosed to Romano privately in her questionnaire to firms that had reincorporated many years later. Second, Romano's analysis did not include some public information that would be relevant for studying the confounding events question, such as how the earnings and other financial disclosures of reincorporating companies that coincided with the reincorporation compared with those of non-reincorporating companies.[76]

In sum, there are good reasons, grounded in the empirical evidence, to believe that reincorporations are accompanied by confounding events that can help explain the documented positive abnormal returns. What is lacking in the literature to

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[75] Sanjai Bhagat & Roberta Romano, Event Studies and the Law: Part II – Empirical Studies of Corporate Law (2001), at 4; see also See Roberta Romano, The Need for Competition in International Securities Regulation, Yale Law School Research Paper No. 258 (2001); Roberta Romano, The Genius of American Corporate Law, p.18 (1993).

[76] It also be worth noting that the breakdown of reincorporating firms into groups in Romano's study involved substantial "noise" which made it difficult to get statistically significant results. Given that the breakdown into groups involved a great deal of noise (as the study itself readily admits), the 1985 study prudentially emphasizes that this noise, "may very well be the source of the test's inability to find any significant difference among the groups." Id. at 272. The only conclusion that the 1985 study was prepared to make was that "... we cannot conclude definitely that the stock returns for the different types of reincorporations are significantly different..." Id.

date is a better understanding of what is causing firms to incorporate in given times to particular jurisdictions. This is an issue we will return to in Part V.

III. Does a Marginal Superiority of Delaware Incorporation Imply that State Competition Benefits Investors?

Part II questioned whether the available empirical evidence demonstrates that Delaware's legal regime benefits investors more than that of other states. In this Part, we change directions and assume that incorporation in Delaware does add some value. This is a reasonable assumption: Presumably reincorporation adds some value, even if it is difficult to measure, to the firm, otherwise shareholders would tend not to vote to reincorporate. But what are the implications of such benefits for the merits of state competition?

Many scholars, without much discussion, have assumed that the presence of benefits to shareholders from Delaware incorporation would prove that state competition benefits investors. This is not a valid inference. The relative performance of Delaware in a state competition regime and the overall performance of the state competition system are two separate issues. Findings of Delaware marginal superiority do not address the question of how well state competition is performing overall and, in particular, whether it performs better than would an alternative regime. And it is the performance of the state competition regime overall that is at the heart of the debate surrounding state competition in corporate charters.

A. The Need to Evaluate States' Collective Performance

It is worthwhile pausing to emphasize that, in many respects, the various states' corporate regimes are not all that different from each other when compared against the range of possible choices and the laws of other countries. This feature of U.S. corporate law has been well documented in William Carney's comprehensive

study of state corporate law.[77] The similarity is especially noteworthy in light of the existence of fifty-one separate corporate codes and the resulting opportunity for a wide variety of approaches to many corporate law issues.[78]

Given the fundamental similarity among state corporate law regimes, assessing the collective approach that the states have adopted in most areas of corporate regulation is as important in determining the value of state competition as evaluating some of the real differences (such as in the area of takeover regulation) that do exist between states. This assessment of states' collective approach should focus on those areas where there is a substantial divergence between the interests of managers and shareholders. It is in these areas that states, including Delaware, are likely to collectively adopt a sub-optimal position.

B. A Skeptical Account of State Competition is Consistent with Delaware Marginal Superiority

The superiority of Delaware law, as purportedly documented by the studies we reviewed in Part II of this paper, is consistent with the pro-state competition position. But, less appreciated, such a finding is equally consistent with a more skeptical theory of how state competition works and, therefore, is inconclusive in adjudicating the debate over state competition. Indeed, a stronger statement is warranted. Any account of state competition – whether critical or supportive – that takes into account the substantial uniformity in substantive arrangements, would likely start from the premise that Delaware is marginally better. If all states have essentially the same substantive rules, it is likely the case that Delaware's unique non-substantive advantages will outweigh any of the relatively small differences that

[77] See William J. Carney, The Production of Corporate Law, 71 S.Cal.L.Rev. 715 (1998); see also John C. Coffee, Jr., The Future as History: The Prospects for Global Convergence of Corporate Governance and Its Implications, 93 Nw. U.L. Rev. 641, 702 (1999) ("the best documented finding in the empirical literature on the U.S. corporate chartering competition is that a high degree of uniformity has emerged in American corporate laws.").

[78] For example, despite the large number of U.S. jurisdictions, none of them has offered, as the British City Code has done, a clear and categorical ban on the use of defensive tactics in the presence of a bona fide tender offer in the absence of shareholder approval. See 2 P.F.C. Begg, Corporate Acquisitions and Mergers (1998).

exist among state laws. Delaware is the beneficiary of network externalities and a well-developed legal infrastructure.[79]

For example, consider the following skeptical account of state competition. Just as shareholders presumably approve reincorporations when they increase firm value, a decision by managers not to reincorporate, which is not reviewable by shareholders under state law, is presumably in the interests of managers. With respect to certain corporate law subjects, there will often be a substantial divergence between the interests of managers and those of shareholders. In such circumstances, Delaware, as well as other states, will care a great deal about satisfying managers' preferences, as states will wish to prevent managers from pursuing reincorporating elsewhere.[80]

As we have argued in earlier work, corporate rules that are significantly redistributive from shareholders to managers and rules that affect the discipline of the market are likely areas where states, as a result of the competition for corporate charters, will fail to maximize shareholder wealth. The failure to maximize shareholder wealth in these areas will be true not only of Delaware, but of other states as well. As a result, it is theoretical possible for there to be a competitive equilibrium were it is true both that: (1) states adopt corporate law regimes which tend to favor managerial interests over shareholder interests where there is substantial divergence of interests; and (2) reincorporation into Delaware often provides some additional value, on the margin, to shareholders if Delaware offers advantages not reflected in its substantive rules. This reasoning can be captured formally in a model where such an outcome is a competitive equilibrium.[81]

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[79] See generally Jill Fisch, The Peculiar Role of the Delaware Courts in the Competition for Corporate Charters, 68 University of Cincinnati Law Review 1061 (2000).

[80] See Lucian A. Bebchuk, The Desirable Limits on State Competition, 105 Harvard Law Review 1435 (1992); Allen Ferrell & Lucian Bebchuk, Federalism and Corporate Law: The Race to Protect Managers from Takeovers, 99 Colum. L. Rev. 1168 (1999); Lucian Bebchuk & Allen Ferrell, A New Approach to Takeover Law and Regulatory Competition, 87 Virg. Law Rev. 111 (2001).

[81] See Oren Bar-Gill, Michael Barzuza, and Lucian Bebchuk, A Model of State Competition in Corporate Law (working paper, 2001), available on ssrn.com. This model does differ from the position adopted by William Cary in his Yale Law Review article in an important respect. Cary believed in a "race to the bottom" in which Delaware was offering especially poor corporate rules. In contrast, this model puts forward a race to the bottom

Even if it were empirically true (which we do not believe it is) that the superiority of Delaware for many shareholders lies in it having a better substantive regime, this should still be the beginning, not the end, of the analysis. It would still be the case that where states have ended up overall could still be questioned. One could, for example, imagine a takeover regime, such as the one embodied in the British City Code, far more hospitable to takeovers than that of Delaware or any other state. Or one might believe that having a regime even more protective of target management than that currently provided by any state would be preferable. A regime in which dead-hand and slow-hand poison pills were routinely used would be one such example.

IV. Does State Competition Work Well in the Area of Takeover Regulation?

Despite the substantial similarity in state corporate law regimes, there is some significant variance among states in their regulation of takeovers. Although most states have adopted some antitakeover statutes, there remain important differences between states' antitakeover stances. Supporters of states competition have sought to reconcile their position that competition works well with their view, supported in this case by the evidence, that antitakeover statutes often do not serve shareholders. To this end, they have made empirical claims that state competition does not reward, and thus does not contribute to, the adoption of antitakeover protections. As this Part shows, however, these empirical claims fail to establish that competition does not encourage the adoption of antitakeover protections.

A. The View that States Restrict Takeovers Excessively

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equilibrium in which Delaware is slightly better than other states for shareholders. See William L. Cary, Federalism and Corporate Law: Reflections upon Delaware, 83 Yale L.J. 663 (1974).

State takeover law consists of two basic components. First, states impose rules on bidders wishing to acquire companies. These rules are usually contained in antitakeover statutes. Second, takeover law includes rules governing the use of defensive tactics by managers wishing to defeat an unwanted takeover bid. In Delaware, the law on defensive tactics consists almost entirely of judge-made law. In other states, statutory law plays a more important role in the form of poison pill endorsement statutes and constituency statutes.[82]

While case law, such as Delaware's law on the use of defensive tactics, is extremely important, direct empirical evidence on the effect of takeover law on shareholder wealth has focused on antitakeover statutes, including statutes addressing the use of defensive tactics. Because these statutes are proposed and adopted on specific dates, they allow for empirical estimation of their effects. The evidence from this research consistently shows that antitakeover statutes virtually never increase firm value and, in fact, often decrease it.[83]

While a typical antitakeover statute has a negative, albeit modest, effect on shareholder value, there are three states that have gained notoriety for the extreme nature of their antitakeover statutes. Massachusetts, Ohio, and Pennsylvania have adopted antitakeover statutes that either impede or substantially reduce the attractiveness of takeovers above and beyond that normally associated with state antitakeover statutes. All three antitakeover statutes have been heavily criticized and identified in empirical studies as causing a substantial reduction in firm value.[84]

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[82] Poison pill endorsement statutes explicitly authorize the use of the "poison pill" defense against hostile takeovers, a defense that is highly effective. Constituency statutes explicitly permit target management to take into account the interests of non-shareholder groups, such as employees, as a justification in fending off hostile takeovers.

[83] See, e.g., Jonathan Karpoff & Paul Malatesta, The Wealth Effects of Second-Generation State Takeover Legislation, 25 Journal of Financial Economics 291 (1989) (forty second-generation statutes adopted in twenty-six states had, on average, a -.294 % impact on stock prices on the date the earliest know newspaper article concerning the proposed legislation appeared). For a survey of the many event studies on state antitakeover statutes, see Grant Gartman, State Antitakeover Laws (2001) (on file with authors).

[84] See Szewcyk and Tsetsekos, State Intervention in the Market for Corporate Control: The Case of Pennsylvania Senate Bill 1310, 31 Journal of Financial Economics 3 (1992) (Pennsylvania's antitakeover statute); Karpoff and Malatesta, Pennsylvania Law: State

Supporters of state competition are among those who tend to believe that states often restrict takeovers excessively. For instance, Ralph Winter, one of the early influential proponents of the pro-state competition position, has expressed his belief that a legal regime that facilitates takeovers increases firm value.[85] Frank Easterbrook and Daniel Fischel have famously argued that managers should be "passive" in the face of takeover and not engage in defensive tactics.[86] Another leading pro-state competition theorist, Roberta Romano, has forthrightly acknowledged the "dismal track records of most states in takeover regulation."[87]

How do supporters of state competition square this circle? The stock response has been to emphasize the fact that Delaware, the leading corporate law jurisdiction, has a less restrictive antitakeover statute than that of many other states. If the most successful state has among the mildest of antitakeover statutes, then it necessarily follows that state competition does not encourage states to impose excessive antitakeover protections. More concretely, the following four claims have been made by supporters of state competition:

(1) Delaware corporations have a higher incidence of bids and a higher acquisition rate, indicating that Delaware's takeover law is more hospitable to takeovers;

(2) Direct observation of the terms of states' antitakeover laws also reveals that Delaware's takeover regime is more hospitable;

(3) The market for incorporations has penalized those states that have enacted extreme antitakeover statutes, such as Massachusetts, Ohio, and Pennsylvania.

Antitakeover Laws and Stock Prices, 46 Financial Analyst Journal 8 (1990); Swartz, The 1990 Pennsylvania Antitakeover law: Should Firms Opt out of Antitakeover Legislation, 11 Journal of Accounting, Auditing, and Finance, 223 (Pennsylvania's antitakeover statute); Ryngaert and Netter (1990) (Ohio's antitakeover statute); Robert Daines, Do Staggered Boards Affect Firm Value? Massachusetts and the Market for Corporate Control, NYU Law School (2001) (Massachusetts antitakeover statute).

[85] Ralph Winter, State Law, Shareholder Protection, and the Theory of the Firm, 6 J. Legal Studies at 289.

[86] Frank Easterbrook and Daniel Fischel, The Proper Role of a Target's Management in Responding to a Tender Offer, 94 Harv. L. Rev. 161 (1981).

[87] Roberta Romano, Competition for Corporate Charters and the Lesson of Takeover Statutes, 61 Fordham L. Rev. 843, 859 (1993).

(4) The adoption of state antitakeover statutes is largely outside the normal parameters of state competition for incorporations.

We will question each of these four claims in turn.

B. Claims that Delaware Corporations are Acquired More Often

Robert Daines' Tobin's Q study, discussed earlier, identified Delaware's takeover regime as one of the factors accounting for a higher Tobin's Q among Delaware firms.[88] He found that Delaware firms are more likely to receive bids and are more likely to be acquired than non-Delaware firms. Daines attributed the different bid and acquisition rate of Delaware firms to Delaware providing fewer impediments to hostile bids.

In our view, this attribution of the different bid and acquisition rates of Delaware firms to Delaware's takeover law is unwarranted for several reasons. First, although cleanly separating friendly and hostile acquisitions is tricky,[89] Daines fails to distinguish between friendly and hostile acquisitions. Because the majority of all acquisitions are friendly, the difference in acquisition incidence he reports might be due in large part to differences in the incidence of friendly acquisitions of Delaware and non-Delaware firms. Even if one were to take the view that Delaware is mildly more hospitable to hostile takeovers than other states, it would be hard to attribute a substantial difference in the incidence of friendly acquisitions to this mild difference in the treatment of hostile acquisitions.[90]

Rather than attributing the different acquisition (and bid) rate to differences in the treatment of hostile bids, the more plausible explanation for the differences between Delaware and non-Delaware firms is once again self-selection. Firms

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[88] On a related note, Peter Dodd and Richard Leftwich, The Market for Corporate Charters: Unhealthy Competition v.s. Federal Regulation, 53 Journal of Business 259 (1980) attributes the high reincorporation rate to Delaware in the late 1960s to Delaware's relative permissive attitude toward mergers and tender offers. Id. at 268.

[89] See Schwert, Journal of Finance, 2000.

[90] We have learned from Guhan Subramanian that he found in his work-in-progress no differences between Delaware and non-Delaware firms in terms of the incidence of hostile bids. Thus, according to this evidence, the difference in acquisition rates is largely due to the incidence of friendly acquisitions.

choosing to incorporate in Delaware are different in some way, and the differences between them and non-Delaware firms could be responsible for the different bid and acquisition rates. This theory is more plausible because the differences between Delaware takeover law and that of most other states are relatively minor, as we will explain in section C, and are therefore unlikely to account for the observed differences in the overall incidence of friendly and hostile acquisitions. Interestingly, in a recent empirical study, whether a target firm is a Delaware firm or not has no effect on the outcome of a hostile bid.[91] In sum, Daines' findings do not provide a firm basis for concluding that Delaware is more hospitable to takeovers than other states.

C. Claims that Delaware's Takeover Law is Relatively Moderate

It is far from clear, in fact, that Delaware offers less antitakeover protection than most other states. While it is true that some states have more antitakeover statutes or antitakeover statutes of a more extreme nature, others, such as California, have no such statutes.

More importantly, an assessment of Delaware's relative position cannot be based merely on a comparison of antitakeover statutes because case law plays a central role in Delaware's takeover regulation. Delaware has a well-developed body of case law making the absence of some types of antitakeover statutes practically irrelevant. Delaware's judges have played an active role in developing legal doctrines that permit the use of defensive tactics in general and the potent poison pill defense in particular. Because of the large body of Delaware judge-made law upholding the indefinite use of poison pills, there is no need for an antitakeover statute explicitly authorizing the use of poison pills, so-called poison pill endorsement statutes, or for an antitakeover constituency statute that provide managers with discretion to defend against bids.

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[91] See Bebchuk, Coates, & Subramanian, The Antitakeover Power of Classified Boards: Theory, Evidence and Policy, (Working Paper, 2001), forthcoming in Stanford Law Review (2002).

Furthermore, Delaware's case law on the use of poison pills has rendered the absence of a control share acquisition antitakeover statute and a fair price antitakeover statute practically irrelevant; as long as a poison pill is in place, any additional antitakeover defense is superfluous since the pill completely blocks a bidder from proceeding. Were a bidder to overcome the poison pill defense by taking control of the target corporation's board in a proxy contest (and having the poison pill redeemed by the board), a control share acquisition antitakeover statute and a fair price antitakeover statute, which are usually only applicable to bids that the board does not approve of, would still be irrelevant.

In contrast, the adoption of additional antitakeover statutes might be more significant events for states with less developed case law. Poison pill endorsement statutes and constituency statutes in such states might provide managers with the confidence, notwithstanding the limited case law in the state, that indefinite use of a poison pill defense will be tolerated. Furthermore, the adoption of additional antitakeover statutes may also convey the message that the state is committed to providing substantial protection to managers against unwanted takeovers. Delaware has already set out loud and clear this message through its case law. Thus, it is far from clear that Delaware's antitakeover law is overall more moderate; any comparison between Delaware's takeover regime and those of other states must take into account the central role in takeover regulation played by Delaware's extensive case law.

Although it is difficult to directly compare Delaware's takeover regime to that of other states, much can be learned about the merits of state competition from a more systematic comparison of how other states fare in the market for incorporation when they adopt antitakeover statutes. Given that these states vary widely in their antitakeover statutes and how they fare in the incorporation market, a cross-comparison within the group of non-Delaware companies would be helpful in obtaining a better understanding on how the incorporation market reacts to different levels of antitakeover protection. This is the approach we discuss in Part V.

D. Claims that Outlier States Have Been Penalized

Supporters of state competition often point to the extreme antitakeover statutes of Massachusetts, Ohio and Pennsylvania as examples of Delaware's virtue. Consistent with this view, scholars supporting state competition have suggested that these three states have been penalized rather than rewarded by the incorporations market as a result of their actions. Moreover, these scholars have directed some of their empirical work towards documenting the adverse effects these extreme antitakeover statutes have had on shareholders.

For instance, Robert Daines has found that Massachusetts companies have lower Tobin's Qs than those of Delaware firms.[92] In another study, Daines found that the adoption of Massachusetts' antitakeover statute was accompanied by a significant reduction in the share value of Massachusetts companies.[93] This second study is consistent with earlier studies that found strong negative stock reactions to the adoption of the antitakeover statutes of all three states. This work, however, is simply evidence that the antitakeover statutes of these states harm shareholders, a point with which we readily agree. This in no way establishes that these states have, in fact, been penalized in the market for incorporations as a result of their bad behavior (and that state competition is therefore working well).

Roberta Romano has pointed out that many Pennsylvania companies have opted out of Pennsylvania's extreme antitakeover statute.[94] She argues that this indicates that state competition has worked well. However, such an inference should not be drawn. Because the opt-out procedure under the Pennsylvania antitakeover statute was simple, the managers of Pennsylvania companies that chose to opt-out were not harmed by the passage of the statute. In contrast, those managers of companies that did not opt-out obtained substantial antitakeover protections that they would not have enjoyed otherwise. The substantial incidence of opting out thus does not imply that the passage of the Pennsylvania antitakeover statute did not serve

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[92] Robert Daines, Does Delaware Law Improve Firm Value, 62 J. of Fin. Econ. 525, 546 (2001).

[93] See Robert Daines, Do Staggered Boards Affect Firm Value? Massachusetts and the Market for Corporate Control, NYU Law School (2001) (Massachusetts antitakeover statute).

[94] See Roberta Romano, The Genius of American Corporate Law 68-70 (1993).

managers of a substantial fraction of Pennsylvania companies at shareholder expense. More to the point, it does not imply that passage of the statute harmed Pennsylvania in the market for corporate charters.

The evidence put forward by the supporters of state competition therefore fails to demonstrate that the outlier states have actually been hurt by the incorporations market, as they should have been if this market were to penalize the adoption of shareholder value-reducing corporate rules. Surprisingly, supporters of state competition have made no effort to test directly their prediction that the actions of the outlier states would actually hurt them in the incorporation market. As we shall discuss in Part V, this predicted effect does not in fact exist.

E. Claims that Antitakeover Statutes are Aimed at Attracting Incorporations

In an effort to reconcile their views on state competition and the evidence on antitakeover statutes, state competition proponents have also argued that many antitakeover statutes were passed to prevent particular, politically influential, local companies from being acquired. Therefore, proponents argue, these statutes represent an aberration outside of the normal parameters of state competition. On this view, even though the adoption of such statutes does not serve and indeed hurts the goal of attracting incorporations, states have adopted them because of the political power of some corporate targets.[95]

As Ralph Winter puts it: "The problem is not that states compete for charters but that too often they do not."[96] Accordingly, the desire to increase the number of incorporations does not encourage states to adopt antitakeover statutes but rather, to the contrary, moderates their tendency, due to lobbying by firms, to do so. This argument predicts that states that adopt antitakeover statutes to protect particular companies, disregarding the incorporations marketplace, will attract less incorporations as a result.

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[95] See Romano, The Political Economy of Takeover Statutes, 73 Virginia L.Rev. 111 (1987).

[96] Ralph Winter, Foreword, in Romano, The Genius of American Corporate Law (1993).

Supporters of state competition, however, have made no attempt to test this prediction and to examine how the adoption of antitakeover statutes actually affected states' success in the incorporations marketplace. As we shall discuss in Part V, the evidence does not confirm this prediction but rather indicates that adopting antitakeover statutes makes states more, not less, successful in the incorporations marketplace.

V. NEW EVIDENCE ON THE DETERMINANTS OF INCORPORATION DECISIONS

A. A New Approach

A natural way of getting a handle on how state competition actually works, and whether it benefits shareholders' interests, is to focus directly on how the choices states make with regard to corporate legal regimes affect their competitive position in the market for corporate charters. According to the "race to the top" position, states that adopt legal regimes destructive of shareholder wealth should suffer by attracting fewer incorporations. Conversely, states that adopt legal regimes that enhance shareholder wealth should be rewarded with increased numbers of incorporations. These are testable propositions.

Unfortunately, prior empirical work has not pursued this approach. Rather, the question it has asked is: Given incorporation decisions, does Delaware incorporation increase firm value? As Part II emphasized, this is often equivalent to assuming that incorporation decisions are random events, allowing researchers to treat the incorporation decision as a given. But the fundamental premise of the state competition debate, whichever side one takes, is that incorporation decisions are not random but deliberate.

Another shortcoming with most existing empirical work is that it typically begins its analysis by dividing the incorporation market between Delaware and non-Delaware firms. It then investigates whether incorporating in (or reincorporating to) Delaware benefits investors. This approach effectively lumps together all the non-

Delaware states into one undifferentiated mass, and thus overlooks important variations that exist among the non-Delaware states.

The variations among the non-Delaware states are in fact significant in certain aspects. In particular, states vary widely in how successful they are in retaining companies already headquartered in them (in-state corporations) and in attracting corporations headquartered elsewhere (out-of-state corporations). Furthermore, although states are overall rather similar in their corporate laws, there is still significant variance among states in some areas of corporate law, such as takeover law. Thus, the variation among states both in terms of their laws and in terms of their success in the incorporation market provides a natural laboratory for examining which corporate rules make states more or less attractive.

There is yet another advantage of our approach that is worth highlighting. Delaware is a special case because of the important institutional advantages it offers shareholders. Thus, in comparisons between Delaware and non-Delaware corporations it is difficult to disentangle the effects of these institutional advantages from the effects of having different substantive corporate rules. By focusing on the large set of non-Delaware states, it is possible to make comparisons among states none of which has the special "Delaware" advantages. Removing this variable makes it easier to identify the effects that variations in legal rules have on the distribution of incorporations.

Below we illustrate the value of this approach by presenting some summary statistics and simple cross-state comparisons. A separate study by two of us (the Domicile Decisions Study) has carried out a full empirical study of the determinants of domicile decisions.[97] We will focus on findings concerning how takeover rules affect both the ability of a state to retain in-state companies and their ability to attract out-of-state companies.[98]

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[97] See Lucian Bebchuk and Alma Cohen, Firms' Decisions Where to Incorporate (working paper, 2001), available on www.ssrn.com.

[98] Subramanian also studies empirically the effects of antitakeover statutes on the ability of states to retain their in-state companies. See Guhan Subramanian, The Influence of Antitakeover Statutes on Incorporation Choice: Evidence on the 'Race' Debate and Antitakeover Overreaching, footnote 70 (November 2001 draft) (on file with authors). As will be discussed below, his conclusions are consistent with those of the Domicile Decisions

The approach that we put forward can be applied to identify how other aspects of state corporate law, besides state takeover law, affects companies' domicile decisions. For example, the Domicile Decisions Study analyzes how a state's adoption of the Revised Model Business Corporation Act affects its success.[99] We focus here on takeover rules, however, because of the importance of these rules in the debate over the merits of state competition. We start by describing the basic landscape of state competition and state takeover regulation – the patterns of incorporations and the universe of state antitakeover protections.

B. The Pattern of Incorporations

How does each state fare both in terms of its in-state companies and attracting out-of-state firms? Surprisingly, the large amount of empirical work on state competition has not documented these basic patterns of incorporation. Indeed, it has not even documented how the 50% of total incorporations not captured by Delaware are currently distributed among different states.

The patterns we describe account for all the publicly traded companies for which there was data in the Compustat database at the end of 1999 and which have both their headquarters and their incorporation in the United States. There are 8,556 such companies. Table 1 displays how companies' headquarters are distributed among states – for all publicly traded companies, for all Fortune 500 companies, and for all companies that went public in the five-year period between 1996 and 2000. By "states" we mean throughout the fifty-one jurisdictions consisting of the fifty states and the District of Columbia.

Not surprisingly, states that have large populations and big economies have more companies headquartered in them. California, with the largest population and

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Study with respect to standard antitakeover statutes but not with respect to extreme statutes. He does not study the effect of states' antitakeover statutes on their success in attracting out-of-state incorporations.

[99] Adopting the RMBCA is found not to help states retain their in-state companies and to make states less attractive for out-of-state companies. See Lucian Bebchuk and Alma Cohen, Firms' Decisions Where to Incorporate (working paper, 2001).

economy, is home to 17% of all companies. Its share is especially large, at 25%, among companies that went public in 1996-2000, presumably reflecting the concentration of high-tech companies in California. New York comes in second, with 11% of all companies, followed by Texas with 8%.

Table 2 displays the distribution of incorporations among states – for all publicly traded companies, for all Fortune 500 companies, and for all companies that went public in the 1996-2000 year period. A comparison of Tables 1 and 2 reveals the considerable differences between the distributions of headquarters and incorporations. As is well known, Delaware has by far the largest stock of incorporations (51% of all companies), and even a higher percentage of Fortune 500 companies, at 58%, and even larger still for companies going public in 1996-2000, at 62.55%.

Tables 3 and 4 display how each state fares in the market for incorporations with respect to all companies generally and with respect to all companies that went public in 1996-2000. The Tables display the following for each state: (i) how many of its in-state companies it retains, both in absolute numbers and as a percentage of all in-state companies; (ii) how many out-of-state companies it attracts, again in absolute numbers and as a percentage of all out-of-state incorporations, and (iii) its net flow of companies, once again both in absolute numbers and as a percentage of the number of in-state companies.

The Tables indicate that, both with respect to all companies and to all new (1996-2000) companies, the large majority of states are net "exporters" of companies. Other than Delaware, which is a huge "importer" with a positive inflow, there are only two other states that have a significant positive inflow of incorporations, Maryland and Nevada, with net inflows of 275 companies and 175 companies respectively.

The Tables also indicate that there is a great deal of variance among non-Delaware states in terms of how they fare, both in retaining in-state companies and in attracting out-of-state companies. For example, whereas California retains only 23% of its in-state companies, Ohio and Washington retain more than 50%, and Minnesota, and Indiana retain more than 70%. As for out-of-state incorporations,

while 32 states attract less than 10 out-of-state incorporations each, there are six states with more than 50 each. The question on which we shall focus next is the extent to which this relative performance depends on the antitakeover statutes adopted by the various states.

C. The Landscape of State Antitakeover Statutes

Table 6, which is taken from Grant Gartman's comprehensive survey of state antitakeover statutes,[100] indicates that for each state which antitakeover statutes it has. The vast majority of these statutes were adopted in the period 1985-1991. The first six columns stand for the "standard" types of antitakeover statutes. The seventh and eighth columns stand for the extreme antitakeover statutes.

The standard antitakeover statutes are control share acquisition statutes, fair price statutes, three-year no-freezeout business combination statutes, five-year no-freezeout business combination statutes, poison pill endorsement statutes and constituency statutes. Control share acquisition statutes typically require that a would-be acquirer win approval from a majority of outstanding disinterested shares before it can acquire control. Fair price statutes attempt to ensure that an acquirer does not pay a high price for control and then buy the remaining shares at a lower price.

No-freezeout business combination statutes prohibit acquirers, under certain conditions, from merging with the acquired company for a certain number of years, typically either three or five years. Poison pill endorsement statutes explicitly authorize the use of the poison pill defense by target management. Finally, constituency statutes authorize the use of defensive tactics by target management, such as the poison pill defense, in the name of non-shareholder constituencies, such as employees.

As has been emphasized earlier, the antitakeover statutes adopted by states might have been important not only in what they actually did, but also arguably in

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[100] See Grant Gartman, State Takeover Laws (Investor Responsibility Research Center) (2001).

the antitakeover message they sent. For instance, adopting the full arsenal of standard antitakeover statutes sends a clear antitakeover message to state courts and to potential and existing incorporators. Therefore, in assessing the overall level of protection against takeovers it is of interest to look at the total number of standard antitakeover statutes that a state has. In order to study cross-state differences in shareholder protection, the Domicile Decisions Study uses an antitakeover index that attaches to each state a score from 0 to 5 equal to the number of antitakeover statutes it has among the five standard types.

In addition to the standard antitakeover statutes, unusual and more restrictive statutes were adopted by three states. Pennsylvania and Ohio adopted a statute that enables the "disgorgement" or "recapture" of all the short-term profits made by a hostile bidder. Massachusetts adopted a statute that mandates a classified board structure even for companies that did not elect to have a classified board in their charter, a requirement that has a powerful antitakeover effect.[101]

D. Do Antitakeover Statutes Help States Retain In-State Corporations?

One fact that is immediately apparent from looking at the distribution of incorporations from Tables 3 and 4 is the presence of "home preference." States generally are better able to attract incorporations from companies headquartered in them than from companies headquartered elsewhere. Even states that hardly attract any out-of-state incorporations are commonly able to retain a significant fraction of their in-state companies. States do vary, however, greatly in the fraction of their in-state companies they retain.

Table 3 indicates that states without antitakeover statutes do rather poorly in terms of retaining their companies. Whereas the average fraction of in-state companies retained is 40.98%, most states with no antitakeover statutes retain a

[101] See Lucian Bebchuk, John H. Coates & Guhan Subramanian, The Anti-takeover Power of Classified Boards: Theory, Evidence and Policy (Working paper, Harvard University Law School) (2001), forthcoming in Stanford Law Review (2002).

much lower fraction. For example, California retains only 23% of its in-state companies.

Conversely, Table 3 also indicates that states with all the standard antitakeover statutes generally retain a larger-than-average fraction of their in-state companies. For example, Indiana and Wisconsin, each of which offers a "royal flush" set of five standard antitakeover statutes, retain 72% and 76% respectively of its in-state companies.

Finally, observe that Pennsylvania and Ohio, which have the notorious recapture statute, retain a larger-than-average fraction of their in-state companies. Pennsylvania retains 44% of all of its in-state companies, and Ohio retains 59% of all of its in-state companies. The third "misbehaving" state, Massachusetts, retains 39% of its in-state companies, a figure just barely below the average.

Of course, these observations are just suggestive, and a more systematic testing is necessary before definite conclusions can be reached. One needs to control for other factors, besides state antitakeover statutes, that might be influencing the incorporation decisions of in-state companies. The Domicile Decisions Study accomplished this by controlling for a number of other factors that could conceivably be important, including both characteristics of the incorporating company and characteristics of the state in which the company is headquartered (other than the state's antitakeover statutes).[102]

This testing indicates that having a larger antitakeover index – that is, a larger number of antitakeover statutes – makes a state more likely (at 99% confidence, the highest degree of confidence conventionally used in such testing) to retain its in-state companies. Of the different antitakeover statutes, the ones most useful in attracting

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[102] Controlled-for characteristics of the company included the company's sales, Tobin's Q, return on assets, number of employees, and age (when the company went public). Controlled-for characteristics of the state in which the company is headquartered included the state's population, number of located companies, per capita income, ideological leaning, geographic region, and whether the state has adopted the RMBCA (or its predecessor the MBCA).

in-state firms are control share acquisition statutes, no-freezeout statutes with a moratorium period of more than three years, and poison pill endorsement statutes.[103]

Also consistent with the observations made above, the testing done by the Domicile Decisions Study indicates that having a recapture antitakeover statute, like Pennsylvania and Ohio, does not adversely affect a state's ability to retain its in-state companies. With regard to the classified board statute of Massachusetts, the results are mixed, depending on the type of testing done, but do not overall support the prediction that enacting such a statute would hurt an adopting state in the incorporation marketplace.[104]

E. Do Antitakeover Statutes Attract Out-of-State Corporations?

Even if antitakeover statutes help states retain in-state corporations, how do these statutes affect their competitive position in attracting out-of-state corporations? We will now turn to this second dimension of how states fare in the competition over incorporations.

Table 5 displays the distribution of out-of-state incorporations going to states other than Delaware, and it lists all the states attracting more than 6 out-of-state incorporations. Of the ten top ten states coming after Delaware in attracting out-of-state incorporations, nine states have either four or five antitakeover statutes.

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[103] Guhan Subramanian also tests how the presence of standard antitakeover statutes affects states' ability to retain their headquartered companies, and his results are consistent with those obtained by the Domicile Decisions Study.

[104] In contrast to the results of the Domicile Decisions Study, Subramanian concludes that the recapture and classified boards statutes have hurt the ability of the states adopting them to retain companies. Unlike the Domicile Decision Study, he uses one dummy variable to stand for the presence of either a recapture or a classified board statute and he controls only for company characteristics but not for state characteristics other than their antitakeover statutes. Running the same regressions as Subramanian did, the Domicile Decisions Study obtained similar results to his. However, in order to allow for the possibility that the incorporations market did not treat recapture and classified boards statutes in the same way, the Domicile Decisions Study used a separate dummy variable for each of these statutes. With this specification, the recapture statute was no longer found to hurt the states adopting it even without introducing state characteristics. And once state characteristics were controlled for, the results no longer indicate a negative effect of the classified board statute.

Table 5 also indicates that the three "outlier" states, which have been blacklisted by supporters of state competition as extreme, have not been hurt in the market for out-of-state incorporations. Massachusetts holds the respectable third place (ignoring Delaware), right after Maryland and Nevada, in terms of the number of out-of-state incorporations it attracts. Pennsylvania and Ohio are among the top fifteen states in terms of the number of out-of-state incorporations they attract.

Again, definite conclusions cannot be drawn without controlling for characteristics of states and firms. The Domicile Decisions Study conducts such testing, and its conclusions confirm what is suggested by the above observations. The findings indicate that having a higher antitakeover index (i.e., more antitakeover statutes) makes a state more attractive -- again, at the high 99% confidence level -- for out-of-state incorporations. Of the different types of standard antitakeover statutes, the ones most helpful for attracting out-of-state incorporations are control share acquisition statutes and poison pill endorsement statutes.

The testing also provides clear results with respect to the two types of extreme antitakeover statutes. Neither a classified board statute nor a recapture statute have a statistically significant effect on the ability of a state to attract out-of-state incorporations. This provides further evidence against the claim that the incorporation marketplace penalizes states adopting extreme, value-reducing statutes.

F. Reconsidering Established Positions

States have been busy over the last three decades adopting antitakeover statutes. They have often gone back to the drawing board more than once, either because some earlier statutes were held unconstitutional or to take advantage of newly hatched types of antitakeover statutes. Many states have ended up with most or all the standard antitakeover statutes. However, the enthusiasm of state officials for such statutes has not been matched by shareholders. The passage of antitakeover statutes has been generally accompanied by a negative reaction or, at best, no reaction in the stock price of the companies governed by them.

With the pro-state competition position being the dominant view in corporate law scholarship, most students of corporate law have long held the following two propositions:

(1) Amassing state antitakeover statutes does not serve shareholders, and

(2) State competition rewards, and thereby induces, adopting rules that serve shareholders.

Facing a possible tension between these two propositions, supporters of state competition have sought to reconcile them by advancing an additional proposition:

(3) State competition does not reward, and indeed might discourage, the amassing of antitakeover statutes.

However, as suggested by the observations made above, and by the reported results of the Domicile Decisions Study, proposition (3) is inconsistent with the evidence. This implies that the commonly held view, which consists of holding propositions (1) and (2), can no longer be maintained. Those who have held this view should revise their position on at least one of these two propositions. Whereas the evidence discussed in this section enables rejecting (3), it does not speak directly to which revisions should be made. What is certain is that the conventional picture of state competition needs to be revisited.

Our own view is that, although some antitakeover statutes might not be harmful and even arguably beneficial at times,[105] not all are,[106] and state competition

[105] Control share acquisitions statutes, for example, might be helpful in the absence of other arrangements in addressing pressure to tender problems. See Lucian Bebchuk, Toward Undistorted Choice and Equal Treatment in Corporate Takeovers, 95 Harvard Law Review 1695 (1985); Lucian Arye Bebchuk and Oliver Hart (2001), Takeover Bids vs. Proxy Fights in Contests for Corporate Control, NBER Working Paper No. 8633, available on www.ssrn.com; Lucian Arye Bebchuk, The Case against Board Veto Power in Corporate Takeovers, forthcoming University of Chicago Law Review _ (2002).

thus provides excessive incentives to restrict takeovers. If the "race to the top" story were true, it would be particularly puzzling that competition has failed to discipline the states adopting the most extreme antitakeover statutes. Although they have been the subject of strongly negative market reaction and widespread criticism by students of corporate law, these statutes have been on the books for a long time now. Still, the states having these statutes continue to fare respectably in the incorporation marketplace – both in terms of retaining in-state companies and (especially) in terms of attracting out-of-state companies.

Although puzzling for the conventional "race to the top" view, the adoption of antitakeover statutes and the evidence presented in this Part are not puzzling at all to those who hold to a skeptical account of state competition. On this account, state competition can be expected to produce excessive protections from takeovers. It is a natural consequence of the competitive process itself as currently structured. This process provides states with incentives to place weight on managers' interests, not solely on shareholders' interests, when selecting rules that have a major effect on managers.

VI. CONCLUSION

A recurring claim in the literature on state competition in corporate law is that the existing empirical evidence decisively supports the position of state competition's proponents. Those who are more skeptical of state competition (as currently structured), and the regulatory choices it has produced, have often been portrayed as fighting against established empirical facts. This paper has shown that this widely accepted claim is not valid.

We have shown that the body of prior evidence on which supporters of state competition rely should not be interpreted as supporting their conclusions. First, the existing evidence does not establish that Delaware incorporation produces an

[106] Poison pill endorsement statutes, for example, can produce excessive protection from takeovers for the large fraction of companies that have classified boards. See Lucian Bebchuk, John Coates IV, and Guhan Subramanian (2001), "The Special Antitakeover Power of Classified Boards: Theory, Evidence, and Policy," Stanford Law Review _ (2002).

increase in share value. Although studies have found an association between Delaware incorporation and higher shareholder value, there are significant question with respect to the generality, robustness, and magnitude of this correlation. More importantly, correlation does not imply causation; any correlation of the sort alleged could reflect the underlying differences between firms that elect to incorporate in Delaware and those that do not.

Second, even if it were established that Delaware incorporation is marginally beneficial to investors in the existing state competition equilibrium, this does not imply that state competition benefits investors overall.

Third, we have shown that, contrary to claims made by supporters of state competition, the empirical evidence does not establish that state competition rewards moderation rather than the amassing of antitakeover statutes. In particular, the empirical claims that Delaware is more hospitable to takeovers than average, and that states hostile to takeovers are penalized by the incorporation market, do not have a solid empirical basis.

Finally, we have put forward a new approach to the empirical study of state competition, based on analyzing the determinants of companies' decisions where to incorporate. Evidence obtained using this approach indicates that, contrary to the beliefs of state competition supporters, this competition provides strong incentives for states to offer antitakeover protections. States that amass antitakeover statutes fare better in both retaining in-state companies and attracting out-of-state incorporations. More striking still, even states with extreme antitakeover statutes, widely viewed as detrimental to shareholders, have not been penalized in the market for incorporations.

Our demonstration that the evidence does not favor state competition in corporate law (as currently structured) has important policy implications. It calls for a reconsideration of established positions on the merits of state competition and on the role of federal law in this area. It also calls for a reassessment of the body of corporate law that has been produced by state competition. In the key areas that directly affect managers' private interests, the rules that have been produced by state competition should not be regarded as presumptively value-enhancing.

Our analysis questions whether the extensive takeover protections currently afforded managers in the United States actually serve shareholders' interests. Contrary to prevailing beliefs, we have shown that state competition does not reward moderation in takeover protection. The proliferation of antitakeover statues and protections might well have been, at least partly, the product of incentives created by the incorporation market. These findings lend support to proposals for federal intervention in the takeover area, either in the form of mandatory federal takeover rules that one of us supported in earlier work,[107] or in the form of "choice-enhancing" intervention that we introduced in subsequent joint work.[108]

In sum, more attention needs to be focused on the real possibility that state competition might not work well in some important areas of corporate law. For this to happen, students of corporate law must first recognize that the empirical evidence does not at all rule out this important concern, but rather highlights its relevance. We hope that this paper will help bring about such recognition.

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[107] See Lucian Ayre Bebchuk, Federalism and the Corporation: the Desirable Limits on State Competition, 105 Harv. L. Rev. 1435 (1992).

[108] See Lucian Ayre Bebchuk & Allen Ferrell, A New Approach to Takeover law and Regulatory Competition, 87 Virg. L. Rev. 111 (2001); Lucian Ayre Bebchuk & Allen Ferrell, Federal Intervention to Enhance Shareholder Choice, 87 Virg. L. Rev. 993 (2001).

TABLE 1

THE DISTRIBUTION OF COMPANIES AMONG STATES OF HEADQUARTERS

All publicly traded Companies

State	Number of firms located in state	Percentage
CA	1437	16.80%
NY	954	11.15%
TX	693	8.10%
MA	499	5.83%
IL	426	4.98%
NJ	414	4.84%
FL	408	4.77%
PA	351	4.10%
OH	267	3.12%
MN	248	2.90%
CO	235	2.75%
GA	216	2.52%
VA	192	2.24%
CT	184	2.15%
WA	157	1.83%
MD	143	1.67%
MI	141	1.65%
NC	135	1.58%
MO	130	1.52%
AZ	105	1.23%
IN	104	1.22%
TN	100	1.17%
WI	90	1.05%
OR	81	0.95%
UT	77	0.90%
Other	769	8.99%
Total	8556	100%

Fortune 500 Companies

State	Number of firms located in state	Percentage
CA	50	10.96%
NY	50	10.96%
TX	38	8.33%
IL	35	7.68%
OH	28	6.14%
PA	26	5.70%
NJ	20	4.39%
VA	16	3.51%
MI	15	3.29%
MO	15	3.29%
GA	14	3.07%
CT	13	2.85%
MA	13	2.85%
FL	12	2.63%
MN	12	2.63%
NC	12	2.63%
WA	10	2.19%
WI	9	1.97%
AL	7	1.54%
TN	6	1.32%
DE	5	1.10%
MD	5	1.10%
AR	4	0.88%
AZ	4	0.88%
CO	4	0.88%
Other	33	7.24%
Total	456	100%

Companies going public during 1996-2000

State	Number of firms located in state	Percentage
CA	601	24.65%
NY	243	9.97%
TX	192	7.88%
MA	166	6.81%
FL	140	5.74%
NJ	90	3.69%
IL	85	3.49%
PA	74	3.04%
CO	73	2.99%
GA	69	2.83%
WA	64	2.63%
VA	61	2.50%
MN	54	2.21%
MD	47	1.93%
CT	46	1.89%
OH	40	1.64%
NC	38	1.56%
MI	32	1.31%
AZ	30	1.23%
MO	28	1.15%
TN	25	1.03%
OR	18	0.74%
UT	18	0.74%
DC	17	0.70%
LA	15	0.62%
Other	172	7.05%
Total	2438	100%

TABLE 2

THE DISTRIBUTION OF STATES OF INCORPORATION

All publicly traded Companies			Fortune 500 Companies			Companies going public during 1996-2000		
State	Number of firms incorporate in state	Percentage	State	Number of firms incorporate in state	Percentage	State	Number of firms incorporate in state	Percentage
DE	4385	51.27%	DE	263	58.44%	DE	1525	62.55%
MD	418	4.89%	NY	26	5.78%	CA	106	4.35%
CA	341	3.99%	OH	20	4.44%	MD	83	3.40%
MA	310	3.62%	PA	15	3.33%	NV	77	3.16%
NY	302	3.53%	NJ	13	2.89%	FL	73	2.99%
MN	245	2.86%	MD	9	2.00%	MA	57	2.34%
NV	243	2.84%	NC	9	2.00%	TX	57	2.34%
TX	205	2.40%	VA	9	2.00%	CO	42	1.72%
FL	202	2.36%	IN	8	1.78%	WA	42	1.72%
PA	185	2.16%	FL	7	1.56%	MN	39	1.60%
OH	170	1.99%	GA	7	1.56%	NY	38	1.56%
CO	145	1.70%	CA	6	1.33%	GA	37	1.52%
NJ	145	1.70%	MN	6	1.33%	PA	29	1.19%
GA	116	1.36%	TX	6	1.33%	OH	25	1.03%
VA	101	1.18%	WA	6	1.33%	VA	24	0.98%
WA	100	1.17%	MA	5	1.11%	NJ	19	0.78%
IN	87	1.02%	MI	5	1.11%	MI	18	0.74%
MI	82	0.96%	NV	5	1.11%	NC	16	0.66%
WI	73	0.85%	IL	4	0.89%	OR	15	0.62%
NC	70	0.82%	MO	4	0.89%	TN	13	0.53%
OR	64	0.75%	KS	3	0.67%	IN	11	0.45%
UT	59	0.69%	DC	2	0.44%	MO	11	0.45%
MO	56	0.65%	KY	2	0.44%	UT	11	0.45%
TN	49	0.57%	OR	2	0.44%	LA	9	0.37%
IL	42	0.49%	RI	2	0.44%	WI	9	0.37%
Other	357	4.17%	Other	6	1.33%	Other	52	2.13%
Total	8552	100%	Total	450	100%	Total	2438	100%

TABLE 3

MIGRATION OF COMPANIES IN THE "MARKET OF CORPORATE LAW:" ALL PUBLICLY TRADED COMPANIES

State	Number of firms located in state	Percentage	Number of firms located and incorporate in state	As percentage of all firms located in this state	Number of firms located in state but incorporate in Delaware	As percentage of the number of firms located in state but incorp elsewhere	Number of firms located elswhere but incorporate in state	As percentage of all out-of state incorp	Net flow	As percentage of the number of firms located in state
AK	3	0.04%	2	66.67%	1	100.00%	2	0.02%	-1	-33.33%
AL	53	0.62%	6	11.32%	44	93.62%	2	0.02%	45	84.91%
AR	24	0.28%	5	20.83%	16	84.21%	1	0.01%	18	75.00%
AZ	105	1.23%	27	25.71%	48	61.54%	1	0.01%	77	73.33%
CA	1,437	16.80%	326	22.69%	979	88.12%	15	0.21%	1096	76.27%
CO	235	2.75%	82	34.89%	113	73.86%	63	0.76%	90	38.30%
CT	184	2.15%	25	13.59%	136	85.53%	4	0.05%	155	84.24%
DC	38	0.44%	7	18.42%	24	77.42%	2	0.02%	29	76.32%
DE	37	0.43%	35	94.59%	35	1750.00%	4,350	51.06%	-4348	-11751.35%
FL	408	4.77%	169	41.42%	180	75.31%	33	0.41%	206	50.49%
GA	216	2.52%	103	47.69%	92	81.42%	13	0.16%	100	46.30%
HI	17	0.20%	9	52.94%	5	62.50%	2	0.02%	6	35.29%
IA	41	0.48%	21	51.22%	14	70.00%	5	0.06%	15	36.59%
ID	16	0.19%	2	12.50%	10	71.43%	1	0.01%	13	81.25%
IL	426	4.98%	37	8.69%	246	63.24%	5	0.06%	384	90.14%
IN	104	1.22%	75	72.12%	22	75.86%	12	0.14%	17	16.35%
KS	47	0.55%	17	36.17%	20	66.67%	8	0.09%	22	46.81%
KY	50	0.58%	19	38.00%	27	87.10%	2	0.02%	29	58.00%
LA	54	0.63%	26	48.15%	23	82.14%	4	0.05%	24	44.44%
MA	499	5.83%	194	38.88%	254	83.28%	116	1.44%	189	37.88%
MD	143	1.67%	51	35.66%	80	86.96%	367	4.36%	-275	-192.31%
ME	16	0.19%	10	62.50%	5	83.33%	1	0.01%	5	31.25%
MI	141	1.65%	80	56.74%	48	78.69%	2	0.02%	59	41.84%
MN	248	2.90%	186	75.00%	54	87.10%	59	0.71%	3	1.21%
MO	130	1.52%	44	33.85%	71	82.56%	12	0.14%	74	56.92%
MS	21	0.25%	9	42.86%	7	58.33%	6	0.07%	6	28.57%
MT	9	0.11%	6	66.67%	2	66.67%	0	0.00%	3	33.33%
NC	135	1.58%	62	45.93%	55	75.34%	8	0.10%	65	48.15%
ND	7	0.08%	1	14.29%	4	66.67%	0	0.00%	6	85.71%
NE	26	0.30%	7	26.92%	16	84.21%	4	0.05%	15	57.69%
NH	31	0.36%	4	12.90%	25	92.59%	0	0.00%	27	87.10%
NJ	414	4.84%	113	27.29%	210	69.77%	32	0.39%	269	64.98%
NM	17	0.20%	7	41.18%	6	60.00%	3	0.04%	7	41.18%
NV	68	0.79%	48	70.59%	11	55.00%	195	2.30%	-175	-257.35%
NY	954	11.15%	211	22.12%	511	68.78%	91	1.20%	652	68.34%
OH	267	3.12%	157	58.80%	83	75.45%	13	0.16%	97	36.33%
OK	66	0.77%	26	39.39%	32	80.00%	6	0.07%	34	51.52%
OR	81	0.95%	59	72.84%	17	77.27%	5	0.06%	17	20.99%
PA	351	4.10%	155	44.16%	161	82.14%	30	0.37%	166	47.29%
PR	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
RI	30	0.35%	9	30.00%	15	71.43%	2	0.02%	19	63.33%
SC	49	0.57%	21	42.86%	26	92.86%	2	0.02%	26	53.06%
SD	10	0.12%	4	40.00%	6	100.00%	0	0.00%	6	60.00%
TN	100	1.17%	43	43.00%	42	73.68%	6	0.07%	51	51.00%
TX	693	8.10%	195	28.14%	402	80.72%	10	0.13%	488	70.42%
UT	77	0.90%	35	45.45%	30	71.43%	24	0.28%	18	23.38%
VA	192	2.24%	81	42.19%	85	76.58%	20	0.24%	91	47.40%
VT	13	0.15%	5	38.46%	7	87.50%	0	0.00%	8	61.54%
WA	157	1.83%	88	56.05%	62	89.86%	12	0.14%	57	36.31%
WI	90	1.05%	68	75.56%	17	77.27%	5	0.06%	17	18.89%
WV	15	0.18%	7	46.67%	3	37.50%	0	0.00%	8	53.33%
WY	11	0.13%	4	36.36%	3	42.86%	13	0.15%	-6	-54.55%
Total	8556		2983		4385		5569			
Average		1.92%		40.98%		107.03%		1.27%		-190.31%

TABLE 4
The "market of corporate law" for companies going public during 1996-2000

State	Number of firms located in state	Percentage	Number of firms located and incorporate in state	As percentage of all firms located in this state	Number of firms located in state but incorporate in Delaware	As percentage of the number of firms located in state but incorp elsewhere	Number of firms located elswhere but incorporate in state	As percentage of all out-of state incorp	Net flow	As percentage of the number of firms located in state
AK	1	0.04%	0	0.00%	1	100.00%	0	0.00%	1	100.00%
AL	7	0.29%	1	14.29%	6	100.00%	0	0.00%	6	85.71%
AR	5	0.21%	1	20.00%	3	75.00%	0	0.00%	4	80.00%
AZ	30	1.23%	5	16.67%	17	68.00%	0	0.00%	25	83.33%
CA	601	24.65%	104	17.30%	456	91.75%	2	0.11%	495	82.36%
CO	73	2.99%	23	31.51%	48	96.00%	19	0.80%	31	42.47%
CT	46	1.89%	2	4.35%	41	93.18%	0	0.00%	44	95.65%
DC	17	0.70%	2	11.76%	11	73.33%	0	0.00%	15	88.24%
DE	8	0.33%	8	100.00%	8	0.00%	1,517	62.43%	-1517	-18962.50%
FL	140	5.74%	61	43.57%	61	77.22%	12	0.52%	67	47.86%
GA	69	2.83%	34	49.28%	32	91.43%	3	0.13%	32	46.38%
HI	4	0.16%	1	25.00%	1	33.33%	0	0.00%	3	75.00%
IA	7	0.29%	4	57.14%	2	66.67%	0	0.00%	3	42.86%
ID	4	0.16%	0	0.00%	4	100.00%	0	0.00%	4	100.00%
IL	85	3.49%	5	5.88%	64	80.00%	1	0.04%	79	92.94%
IN	14	0.57%	9	64.29%	3	60.00%	2	0.08%	3	21.43%
KS	12	0.49%	4	33.33%	5	62.50%	3	0.12%	5	41.67%
KY	12	0.49%	3	25.00%	5	55.56%	0	0.00%	9	75.00%
LA	15	0.62%	8	53.33%	5	71.43%	1	0.04%	6	40.00%
MA	166	6.81%	48	28.92%	112	94.92%	9	0.40%	109	65.66%
MD	47	1.93%	14	29.79%	31	93.94%	69	2.89%	-36	-76.60%
ME	7	0.29%	4	57.14%	3	100.00%	0	0.00%	3	42.86%
MI	32	1.31%	17	53.13%	13	86.67%	1	0.04%	14	43.75%
MN	54	2.21%	35	64.81%	17	89.47%	4	0.17%	15	27.78%
MO	28	1.15%	8	28.57%	16	80.00%	3	0.12%	17	60.71%
MS	4	0.16%	1	25.00%	2	66.67%	0	0.00%	3	75.00%
MT	1	0.04%	1	100.00%	0	0.00%	0	0.00%	0	0.00%
NC	38	1.56%	13	34.21%	22	88.00%	3	0.13%	22	57.89%
ND	3	0.12%	1	33.33%	1	50.00%	0	0.00%	2	66.67%
NE	5	0.21%	1	20.00%	3	75.00%	1	0.04%	3	60.00%
NH	8	0.33%	0	0.00%	8	100.00%	0	0.00%	8	100.00%
NJ	90	3.69%	17	18.89%	57	78.08%	2	0.09%	71	78.89%
NM	6	0.25%	1	16.67%	2	40.00%	0	0.00%	5	83.33%
NV	15	0.62%	11	73.33%	3	75.00%	66	2.72%	-62	-413.33%
NY	243	9.97%	33	13.58%	179	85.24%	5	0.23%	205	84.36%
OH	40	1.64%	23	57.50%	15	88.24%	2	0.08%	15	37.50%
OK	11	0.45%	4	36.36%	7	100.00%	0	0.00%	7	63.64%
OR	18	0.74%	12	66.67%	5	83.33%	3	0.12%	3	16.67%
PA	74	3.04%	24	32.43%	38	76.00%	5	0.21%	45	60.81%
RI	6	0.25%	1	16.67%	4	80.00%	0	0.00%	5	83.33%
SC	12	0.49%	3	25.00%	8	88.89%	1	0.04%	8	66.67%
SD	1	0.04%	0	0.00%	1	100.00%	0	0.00%	1	100.00%
TN	25	1.03%	11	44.00%	11	78.57%	2	0.08%	12	48.00%
TX	192	7.88%	52	27.08%	118	84.29%	5	0.22%	135	70.31%
UT	18	0.74%	5	27.78%	12	92.31%	6	0.25%	7	38.89%
VA	61	2.50%	22	36.07%	34	87.18%	2	0.08%	37	60.66%
VT	2	0.08%	0	0.00%	2	100.00%	0	0.00%	2	100.00%
WA	64	2.63%	39	60.94%	23	92.00%	3	0.13%	22	34.38%
WI	14	0.57%	8	57.14%	3	50.00%	1	0.04%	5	35.71%
WV	2	0.08%	0	0.00%	1	50.00%	0	0.00%	2	100.00%
WY	1	0.04%	0	0.00%	1	100.00%	1	0.04%	0	0.00%
Total	2438		684		1525		1754			
Average		1.96%		32.50%		77.43%		1.42%		-322.51%

TABLE 5

THE DIVISION OF THE MARKET FOR OUT-OF-STATE INCORPORATIONS

All publicly traded companies

State	Number of firms located elsewhere but incorporate in state	As percentage of all out-of-state firms
DE	4,350	78.11%
MD	367	6.59%
NV	195	3.50%
MA	116	2.08%
NY	91	1.63%
CO	63	1.13%
MN	59	1.06%
FL	33	0.59%
NJ	32	0.57%
PA	30	0.54%
UT	24	0.43%
VA	20	0.36%
CA	15	0.27%
GA	13	0.23%
OH	13	0.23%
WY	13	0.23%
IN	12	0.22%
MO	12	0.22%
WA	12	0.22%
TX	10	0.18%
KS	8	0.14%
NC	8	0.14%
MS	6	0.11%
Other	67	1.20%
Total	5,569	100%

Fortune 500

State	Number of firms located elsewhere but incorporate in state	As percentage of all out-of-state
DE	259	83.82%
NY	9	2.91%
MD	5	1.62%
NV	5	1.62%
IN	4	1.29%
NJ	4	1.29%
PA	4	1.29%
KS	3	0.97%
OH	3	0.97%
NC	2	0.65%
VA	2	0.65%
DC	1	0.32%
FL	1	0.32%
GA	1	0.32%
HI	1	0.32%
KY	1	0.32%
MA	1	0.32%
RI	1	0.32%
TN	1	0.32%
UT	1	0.32%
Total	309	100.00%

Companies going public during 1996-2000

State	Number of firms located elsewhere but incorporate in state	As percentage of all out-of-state
DE	1,517	86.49%
MD	69	3.93%
NV	66	3.76%
CO	19	1.08%
FL	12	0.68%
MA	9	0.51%
UT	6	0.34%
NY	5	0.29%
PA	5	0.29%
TX	5	0.29%
MN	4	0.23%
GA	3	0.17%
KS	3	0.17%
MO	3	0.17%
NC	3	0.17%
OR	3	0.17%
WA	3	0.17%
CA	2	0.11%
IN	2	0.11%
NJ	2	0.11%
OH	2	0.11%
TN	2	0.11%
VA	2	0.11%
Other	7	0.40%
Total	1,754	100%

TABLE 6 - STATE TAKEOVER LAWS

State	State code	Control Share	Fair Price	2- to 5-years Freeze-out	Poison Pill Endorsement	Constituency	Profit Recapture	Classified Board
Alaska	AK							
Alabama	AL							
Arkansas	AR							
Arizona	AZ	X	X	3		X		
California	CA							
Colorado	CO				X			
Connecticut	CT		X	5		X		
DC	DC							
Delaware	DE			3				
Florida	FL	X	X		X	X		
Georgia	GA		X	5	X	X		
Hawaii	HI	X			X	X		
Iowa	IA			3	X	X		
Idaho	ID	X	X	3	X	X		
Illinois	IL		X	3	X	X		
Indiana	IN	X	X	5	X	X		
Kansas	KS	X		3				
Kentucky	KY		X	5	X	X		
Louisiana	LA	X	X			X		
Massachusetts	MA	X		5	X	X		X
Maryland	MD	X	X	5	X	X		
Maine	ME					X		
Michigan	MI	X	X	5				
Minnesota	MN	X	X	4		X		
Missouri	MO	X	X	5		X		
Mississippi	MS	X	X			X		
Montana	MT							
North Carolina	NC	X	x		X			
North Dakota	ND					X		
Nebraska	NE	X		5				
New Hampshire	NH							
New Jersey	NJ		X	5	X	X		
New Mexico	NM					X		
Nevada	NV	X	X	3	X	X		
New York	NY		X	5	X	X		
Ohio	OH	X	X	3	X	X	X	
Oklahoma	OK	X		3				
Oregon	OR	X		3	X	X		
Pennsylvania	PA	X	X	5	X	X	X	
Rohde Island	RI		X	5	X	X		
South Carolina	SC	X	X	2				
South Dakota	SD	X	X	4	X	X		
Tennessee	TN	X	X	5	X	X		
Texas	TX			3				
Utah	UT	X			X			
Virginia	VA	X	X	3	X			
Vermont	VT					X		
Washington	WA		X	5	X			

Wisconsin	WI	X	X	3	X	X		
West Virginia	WV							
Wyoming	WY	X		3		X		

LAW AND THE DISPERSION OF OWNERSHIP AT THE TURN OF THE CENTURY

by Allen Ferrell

I. INTRODUCTION

When did the United States move to a dispersed ownership structure with vastly increased numbers of shareholders? Moreover, why did the United States shift towards a dispersed ownership structure, while other countries, most notably those of Continental Europe, did not? This paper will attempt to provide some additional data to address the first question, which in the process will cast some additional light on the answer to the second question. This paper will argue that the evidence is inconsistent with the common view that high-quality U.S. corporate and securities laws explain why dispersed ownership occurred when it did in the U.S..

There has been a substantial amount of work in recent years on the relationship between law and ownership structure. LaPorta, Lopze-de-Silanes, Shliefer and Vishny (LLSV) have argued, in a series of influential articles, that legal origins play a crucial role in the development of public stock markets and the willingness of investors to provide external finance.[109] LLSV argue that common law regimes, such as those of United States and Great Britain, tend to protect minority shareholders and, hence, increase the willingness of investors to purchase minority stakes in firms. In turn, this results in larger and more developed stock markets and an increased willingness of investors to provide external finance.

Nor are LLSV alone in emphasizing the importance of regulation in explaining the dispersion of ownership. Some important legal scholars, while generally skeptical of the LLSV indexes, have argued that the level of disclosure, due to exchange listing

[109] See, e.g., LaPorta, Lopez-de-Silanes, Shleifer, Vishny, The Legal Determinants of External Finance, 52 Journal of Finance 1131 (1997); LaPorta, Lopez-de-Silanes, Shleifer, Vishny, Law and Finance, 106 Journal of Political Economy 1113 (1998)

requirements, was reasonably high at the turn of the century in the United States. The purported high level of disclosure by firms, according to this story, helps explain why it is the United States developed a securities market characterized by dispersed ownership around the turn of the century, while other countries did not.[110] High-quality firm disclosure, the reasoning goes, provided the necessary assurance to investors that they are not overpaying for a firm's securities. Indeed, LLS (minus Vishny) in their most recent paper emphasize the importance of securities regulation, and disclosure regulation in particular, rather than corporate law protections for minority shareholders.[111]

Applying the LLSV reasoning to the United States, however, is problematic. As Raghuram Rajan and Luigi Zingales have pointed out, this theory has difficulty in explaining the evolution of stock markets over time. How is it that France, a civil law country, had a much larger stock market (normalized by GDP) than that of the United States in 1913?[112] A second weakness in the LLSV account, along with those that emphasize the quality of U.S. regulation at the turn of the century, is the fact that the United States experienced a shift towards a dispersed ownership structure despite the fact that the United States had, in fact, a weak regulatory regime at this time. This weakness included, this paper will argue, a lax disclosure regime as well as weak overall corporate law protections for minority shareholders.

II. NEW EVIDENCE ON DISPERSION

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[110] See John Coffee, The Rise of Dispersed Ownership: The Roles of law and the State in the Separation of Ownership and Control, 111 Yale Law Journal 1, 34-39 (2001) (emphasizing exchange regulation during this period as an explanation of the change in ownership structure).

[111] See LaPorta, Lopez-de-Silanes, Shleifer, What Works in Securities Law?, Working Paper (2004).

[112] Raghuram Rajan and Luigi Zingales, The Great Reversals: The Politics of Financial Development in the Twentieth Century, 69 Journal of Financial Economics 5 (2003).

There has not been much research done on the rise of dispersed ownership in the United States at the turn of the century.[113] This is likely attributable to the fact that data on ownership structure is difficult to obtain at such an early date in the United States. Two new pieces of evidence on when the rise of dispersed ownership structures began will be presented in this section of the paper. The first piece of evidence consists of a case study of AT&T over the 1875-1905 period based on the records of AT&T now in the possession of the Federal Communications Commission. These records contain information on the share ownership of the largest shareholder as well as the shareholdings of directors, officers and family members of directors and officials. The second piece of evidence is based on an analysis of Massachusetts Railway Commission reports on New England railroads for the 1880-1910 period.

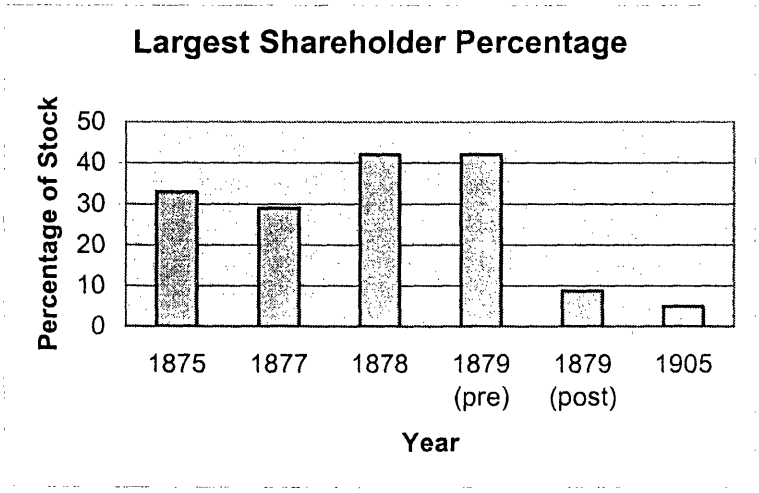
A. AT&T Case Study

On February 27th, 1875, the Bell Patent Association was established with Thomas Sanders, Gardiner Hubbard and Alexander Bell each owning one-third of the Association. Two years later, in 1877, the Bell Telephone Company was established with Thomas Sanders holding the largest block of stock with some 29% of the Bell Telephone Company stock. The next important milestone in the life of what would become AT&T was 1879. Bell Telephone Company and New England Company were consolidated into the National Bell Telephone Company. As a result of this consolidation, the largest

[113] Two notable exceptions are Adolf Berle and Gardiner Means, THE MODERN CORPORATION AND PRIVATE PROPERTY, Appendix 1932) and H. T. Warshow, The Dispersion of Corporate Ownership in the United States, 39 Quarterly Journal of Economics 15 (1924); see also N.R. Lamoreaux, Entrepreneurship, Business Organization, and Economic Concentration, in THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE LONG NINETEENTH CENTURY (ed. Engerman and Gallman) (2000)

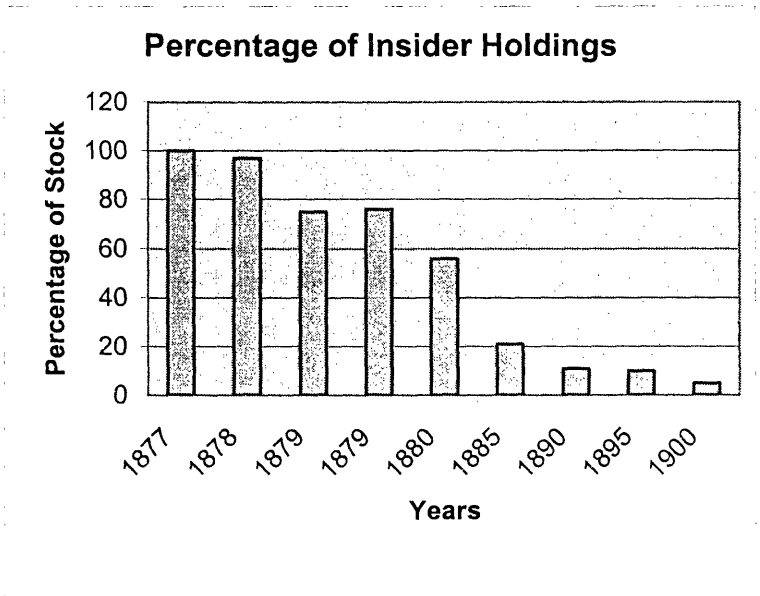
shareholder block dropped, according to FCC records, from 42% (pre-consolidation) to only 8.75% (post-consolidation). The following year the company became the American Bell Telephone Company and, five years later in 1885, the American Telephone and Telegraph Company (AT&T) was formed as a subsidiary of the American Bell Telephone Company. The next year for which data is available for the company from the FCC archives is 1905. In this year the percentage of stock held by the largest shareholder was 5%. In other words, the percentage of stock held by the largest shareholder in 1905 was roughly equivalent to the percentage in 1879 in the immediate aftermath of the National Bell Telephone and New England Company consolidation.

The percentage of stock held by the largest shareholder over the 1871-1905 is summarized below.



What appears to be driving the decline in the percentage of stock held by the largest shareholder (one proxy for dispersed ownership) seems to be the 1879 consolidation of the Bell Telephone Company and the New England Telephone Company. It is this event which appears to be the turning point towards dispersed ownership.

If one looks instead at the percentage of shares cumulatively held by directors, corporate officers and family relations of directors and officers a somewhat different, but nevertheless largely consistent, story emerges. The graph below tracks the change in the percentage of ownership held cumulatively by this group of insiders for years for which there was data available in the FCC records.



Dispersion of ownership appears to be the result of the 1879 consolidation. Insiders' holdings appear virtually unchanged, moving from 75% pre-consolidation to 76% post-consolidation. The dramatic decline in insiders' holdings occurred in the 1880-1885 period. Insiders' holdings went from 56% to 21% of firm stock in this five year period.

One possible explanation for why this drop occurred in the 1880-1885 had to do with American Bell Telephone Company's business strategy during these years. American Bell Telephone Company's 1880 articles of incorporation explicitly authorized

the company to hold stock in other companies.[114] Over the next five years, and beyond, the company aggressively established substantial ownership stakes in local companies, as well as acquisitions of companies, that provided telephone service using American Bell Telephone Company's equipment. Important consolidations during this period included the acquisition of the Western Electric Manufacturing Company in 1882. It was during this period of substantial growth and acquisition that insiders' holdings in the American Bell Telephone Company were quickly diluted. During this same time, the number of outstanding shares went up dramatically from 7,250 in 1879 to 96,021 shares by 1885.

The apparent effect of corporate consolidations and acquisitions on stock dispersion in American Bell Telephone Company (and its predecessors) stock is consistent with a recent study by Julian Franks, Colin Mayer and Stefano Rossi which finds that much of the dispersion of ownership that occurred in Great Britain in the first half of the twentieth century was due to takeover and acquisition activity.[115] This takeover and acquisition activity in Great Britain, it should be emphasized, took place against the backdrop of weak protections for minority shareholders and generally poor disclosure by firms.[116]

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[114] See WESTERN ELECTRIC AND THE BELL SYSTEM p. 4 (editor Albert Iardella) (1964)

[115] See Julian Franks, Colin Mayer, and Stefano Rossi, The Origination and Evolution of Ownership and Control, Working Paper (2002).

[116] See generally id.; see also Brian Cheffins, Does the Law Matter? The Separation of Ownership and Control in the United Kingdom, Working Paper (2000).

B. New England Railroads

1. New England and Railroads

New England was one of the first regions in the United States to industrialize. Some 6,700 corporations, substantially more than other regions, were organized in New England alone between 1800 and 1862.[117] Railroads played an important role in the industrialization of New England from the start. Starting in the 1830s and 1840s, a network of railroads in New England was constructed backed by significant financing by local investors. Perhaps most importantly, railroads enabled the transportation of cotton products, an important product for New England, to Boston, New York and other destinations.[118] These investors went on to finance railroads outside of New England, such as the Atchinson, Topek & Smith Railroad, which had extensive operations in the southwest United States.

More generally, railroads played an important role in the industrialization of the United States and the increased need for capital associated with industrialization. The capital employed in the railroad industry in the United States increased from some $300 million in 1850 to $9-10 billion in 1890 to $21.1 billion by 1916.[119]

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[117] William Kessler, Incorporation in New England: A Statistical Study, 8 Journal of Economic History 43 (1948).

[118] See Peter Temin, The Industrialization of New England: 1830-1880, NBER Historical Paper 114 (1999).

[119] Ranald Michie, THE LONDON AND NEW YORK STOCK EXCHANGES: 1850-1914, p.222 (1987) (cited US Department of Commerce, THE HISTORICAL STATISTICS OF THE UNITED STATES (1975))

For these reasons, it is interesting to examine what happened to the ownership structure of New England railroads, given their importance, around the turn of the century.

2. *Number of Shareholders and Outstanding Shares*

The Massachusetts Railroad Commission during the 1880-1910 period collected various pieces of information directly from Massachusetts railroads in the form of reports the railroads were required to file with the Commission.[120] The Commission, in turn, made these reports publicly available. The Commission collected data on the number of shareholders each railroad had, the number of outstanding shares in some years, as well as income and balance sheet information. Unfortunately, the Commission did not gather data on the size of the largest shareholder's stake or the average holding of stock by investors in a particular railroad. Accordingly, the information on the dispersion of ownership drawn from this source will necessarily be rough. It is worth noting that the few studies that have looked at dispersion of ownership in the early twentieth century in the United States have also focused on the number of shareholders given data limitations.[121]

The Massachusetts Railroad Commission Reports cover approximately fifty-five railroads with some variation from year to year. Some variation over any extended period of time is obviously inevitable given consolidations and liquidations. Many of

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[120] Other state railroad commission, such as those of South Carolina and Texas, were in operation during this time, but did not consistently track number of shareholders, outstanding shares or other proxies for dispersion.

[121] See, e.g., H. T. Warshow, The Dispersion of Corporate Ownership in the United States, 39 Quarterly Journal of Economics 15 (1924).

the railroads were quite small with modest earnings. This can be readily seen in the table below which provides the net income of railroads that had to file reports with the Commission that reported net income to the Commission in the year 1900.

Railroads	Reported Net Income in 1900
Attleborough*	$9,219
Berkshire*	$36,185
Boston & Albany	$2,023,685
Boston & Maine	$6,732,137
Boston & Providence*	$399,349
Boston Revere	$17,000
Cape Ann	$2,350
Central MA*	$59,310
Chatham*	$1,424
Chester & Becket*	-$10,077
Connecticut River*	$258,000
Fitchburg	$1,177,454
Grafton & Upton	$14,643
Holyoke & Westfield*	$30,304
Hoosac Tunnel	$19,586
Lowell & Andover*	$52,326
Milford, Franklin*	$1,193
Milford & Woonsocket*	-$33,753
Nantucket Central	-$2,060
Nashua & Lowell*	$72,863
New England*	$150,000
New Haven & Northampton*	$99,776
New London, Northern*	$136,780
New York, New Haven	$12,100,312
North Brookfield*	$2,851

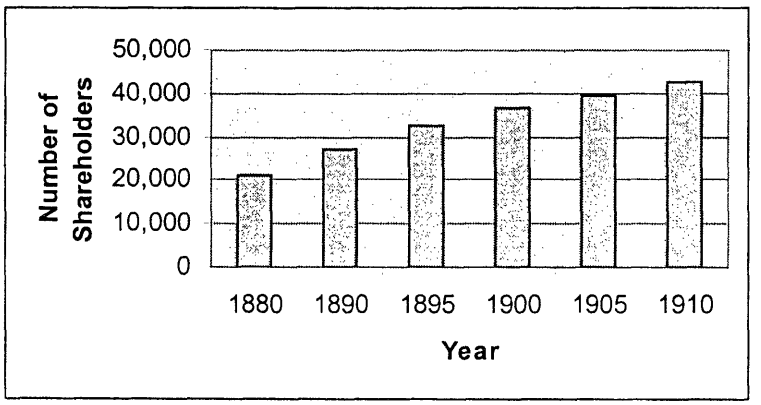
Norwich & Worcester*	$231,079
Old Colony*	$1,162,623
Pittsfield & North Adams*	$22,500
Providence & Springfield*	$20,698
Providence, Webster*	$2,820
Providence & Worcester*	$351,860
Rhode Island & MA*	$10,000
Stockbridge & Pittsfield*	$26,974
Stony Brook*	$21,144
Union Freight	$23,311
Vermont & MA*	$191,580
Ware River*	$52,500
West Stockbridge*	$1,800
Worcester, Nashua & Rochester*	$173,039

* railroad's lines are leased and operated by another railroad

The bulk of the earnings were generated by just five railroads -- New York, New Haven & Hartford ($12,100,312), Boston & Maine ($6,732,137), Boston & Albany ($2,023,685), Fitchburg ($1,177,454) and Old Colony ($1,162,623). Most of the railroads followed by the Commission were simply not economically meaningful. Moreover, many of these railroads merely leased their lines to other railroads. With two exceptions, all the railroads that leased their lines either leased them to New York, New Haven & Hartford, Boston & Maine or Boston & Albany. The Attleborough Branch Railroad, for instance, leased its lines to the New York, New Haven & Hartford Railroad Company and, in return, received a rental payment which constituted its earnings.

Using the number of shareholders and the number of outstanding shares as a (very) rough proxy for dispersion of ownership, what happened to ownership dispersion

of the five major railroads during the 1880-1910 period? It is worth keeping in mind that these railroads were actively engaged in frequent merger and acquisition activity throughout the years leading up to 1900 as well as after. Indeed, this is, in large part, how they ended up becoming the largest railroads by 1900. The increase in the cumulative number of shareholders at the five major railroads between 1880-1910 is reported below.



The number of shareholders increased by 27% between 1880-1890, another 35% between 1890-1900 and a more modest 17% between 1900-1910. The fastest period of growth was between 1890-1895 when the number of shareholders grew at 20%. This rapid increase during the 1890-1895 period is attributable, in large part, to the New York, New Haven & Hartford Railroad which increased its number of shareholders from 3,707 in 1890 to 6,750 by 1895.[122] This was also during the time that the New York, New Haven & Hartford Railroad was engaged in a flurry of combinations and acquisitions -- so much so that the railroad became famous for its frenzied consolidation activity.[123]

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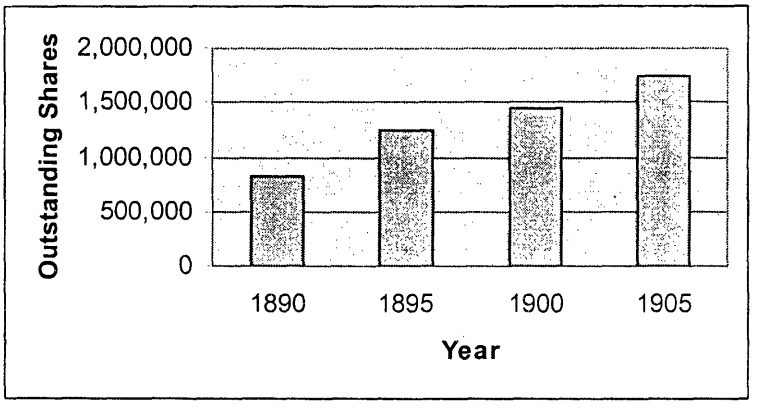
[122] The other four major railroads, however, also experienced a substantially increase -- although not of the same magnitude as that of New York, New Haven & Hartford Railroad -- in the number of shareholders.

[123] See consolidation history of New York, New Haven & Hartfield Railroad in Massachusetts Railroad Commission Report (1910).

The number of outstanding shares for each railroad is also available from the Massachusetts Commission Reports for the 1890-1905 period. The graph below charts the increase in the number of outstanding shares for the five major railroads during this period.



Once again the number of shares increased most dramatically in the 1890-1895 period moving from 829,592 outstanding shares to a total of 1,242,801 by 1895. The outstanding shares of New York, New Haven & Hartford Railroad, once again in the lead, approximately doubled during this five year period.

What of the other railroads other than the five major railroads? With respect to these railroads, there was little change for most railroads either in terms of their number of outstanding shares or their number of shareholders. In fact, more of these railroads experienced a drop, albeit modest, along these two dimensions than an increase during the 1880-1910 period.

Overall, the evidence from the New England railroads is consistent with the view that the dispersion of ownership began to occur in a substantial way, at least for the railroad industry, in the 1880s and 1890s. In addition, the evidence presented is

consistent with the view that dispersion of ownership often occurred as a result of merger and acquisition activity.

Could the dispersion of ownership that occurred for both AT&T and the major New England railroads be explained by legal factors such as high-quality regulation, rather than merger and acquisition activity? It is to this question the next section turns.

III. The Legal and Institutional Context: 1880-1910

A. Disclosure Regulation

A common claim made in the legal academic literature is that the existence of demanding disclosure requirements imposed by exchanges in the U.S. in the decades immediately prior to the imposition of mandatory disclosure in the 1930s by the Securities Act of 1933 and the Exchange Act of 1934 is powerful evidence that the level of disclosure by firms of firm-specific information, such as income and balance sheet data, in the pre-mandatory disclosure period was reasonably high.[124] And, so the story goes, this happy result is only to be expected. Competition between exchanges for listings and investors' order flow will ensure a "race to the top" in terms of the disclosure demanded by exchanges, even in the absence of a legal requirement to do so.[125]

There is some truth in these arguments. It is true that the disclosure standards a firm had to meet as a condition to listing on the NYSE, as of 1931, were extensive.

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[124] See, e.g., Paul Mahoney, Exchange as Regulator, 83 Virginia Law Review 1453 (1998); Roberta Romano, Empowering Investors: A Market Approach to Securities Regulation, 107 Yale Law Journal 2359 (1998)

[125] See, e.g., Steven Huddart, John Hughes, Markus Brunnermeier, Disclosure Requirements and Stock Exchange Listing Choice in an International Context, 26 Journal of Accounting and Economics 237 (1999).

Firms had to provide balance sheets and income statements for the prior two years and earnings statements for the prior five years. These balance sheet and income statements had to be updated periodically. Firms also had to provide a written description of how it calculated depreciation. Depreciation methods could not be changed without publicly providing details of any change in its annual report.[126]

Moreover, it is also true that the NYSE faced real competition for investors' orders from at least 1885 till the imposition of mandatory disclosure in 1930s. In 1885 the Consolidated Stock and Petroleum Exchange was formed for the purpose of providing an alternative to the NYSE. The Consolidated Stock and Petroleum Exchange competed head-to-head with the NYSE in NYSE-traded securities. Trading in railroad securities, in particular, was a particular focal point of competition between these two exchanges right from the start.[127] This exchange was able to place competitive pressure on the NYSE as it only charged half the commission rate of that charged by the NYSE with a smaller minimum allotment (ten units in contrast to the NYSE's minimum allotment of a hundred units).[128] The Consolidated Stock and Petroleum Exchange was not the only competitive threat. The Boston Exchange, prior to 1900, was the "principal market for industrial securities."[129] Finally, the London Stock Exchange had a significant volume of trading in U.S. securities. Indeed, the NYSE viewed the London Stock Exchange as such a

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[126] See Stock Exchange Practices: Hearings on S. Res. 84 Before the Senate Commission on Banking and Currency, 73rd Cong., 2nd Sess. Appendix, 76-115 (1933) for the NYSE's 1931 listing requirements.

[127] Ranald Michie, THE LONDON AND NEW YORK STOCK EXCHANGES: 1850-1914, p.204 (1987)

[128] Id.

[129] Vincent Carossa, INVESTMENT BANKING IN AMERICA 44 (1970)

significant threat that it attempted in 1911 to reduce the volume of trades executed on the London Stock Exchange through a series of rule changes.[130]

But there are, nevertheless serious problems with this analysis. The level of disclosure by firms at the turn of the century was not as high as commonly claimed for three reasons. First, the theoretical prediction that exchange competition ensures demanding exchange disclosure requirements is questionable in this particular context. Second, the actual legal and exchange requirements imposed on firms to disclose information were fairly minimum in the 1880-1910 period. Finally, empirical evidence, based on an analysis of the annual reports issued by companies in the 1890-1910 period, indicates that firm disclosure levels were, on the whole, low.

1. Exchange Competition and Disclosure Regulation: Theory

The desire to attract the trading volume of investors will ensure, the argument goes, that exchanges institute demanding disclosure requirements as a prerequisite to listing on the exchange. This is so because investors value disclosure and will route their stock orders accordingly. Based on this reasoning, Paul Mahoney and others have argued that exchanges should be vested with the responsibility of setting disclosure standards.[131] How this competition for trading volume and listing business will work out has been fleshed out in different ways. Paul Mahoney, for instance, argues that "[o]ne important source of risk [to investors] is the divergence of investor viewpoints about the company's

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[130] See Ranald Michie, THE LONDON AND NEW YORK STOCK EXCHANGES: 1850-1914, p.202 (rules making it more difficult for members to conduct arbitrage trades on the London Stock Exchange).

[131] See Paul Mahoney, Exchange as Regulator, 83 Virginia Law Review 1453 (1998).

performance. The company can reduce this divergence by making financial and other disclosures."[132] As result, this will increase the "desirability of listed companies as investment vehicles."[133]

Huddart, Hughes and Brunnermeier (HHB), to take another prominent example, have attempted to capture in a formal model the intuition that exchanges competing to maximize trading volume will offer demanding disclosure standards.[134] In the HHB model, exchanges will attempt to capture the trading done by uninformed, liquidity traders – traders who have no private information about the firms' true value but need to trade given their liquidity needs – even while simultaneously attempting to attract listings from firms whose corporate insiders wish to engage in insider trading using their private information about their firm's true value. The model's implication that there will be a "race to the top" in terms of disclosure standards relies on the plausible assumption that uninformed liquidity traders prefer not to trade, all else being equal, against informed traders. An exchange with a demanding disclosure regime reduces the likelihood in their model that uninformed liquidity traders are trading against informed traders. Corporate insiders prefer to conduct their trades where they can "hide" among a large number of liquidity traders even at the expense of having some of their private information publicly revealed as a result of the exchange disclosure rules. Hence, exchanges will voluntarily offer demanding disclosure standards given their preference, a preference shared by corporate insiders, to attract the trades of liquidity traders.

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[132] Id. at 1458.
[133] Id.
[134] Steven Huddart, John Hughes, Markus Brunnermeier, Disclosure Requirements and Stock Exchange Listing Choice in an International Context, 26 Journal of Accounting and Economics 237 (1999).

Neither of these particular lines of reasoning is entirely convincing. As for the Mahoney argument, the precise connection between the desirability of a security as an investment and divergence of investor viewpoints is not spelled out. Even assuming that a decrease in the divergence of investor viewpoints will result in reduced systematic risk, this will not necessarily render the securities more attractive as an investment, as the risk-adjusted return will, in an efficient market, remain the same. Investors will simply enjoy a lower return as a result of bearing less systematic risk. At this point, the relative attractiveness of securities with high disclosure and those with low disclosure as an investment will remain the same.

Nor does the HHB model constitute a firm basis for arguing that exchanges will institute demanding disclosure requirements and, thereby, ensure that listed firms meet demanding disclosure standards even in the absence of mandatory disclosure. The HHB model normalizes all securities returns, regardless of where the security trades, to zero.[135] It is this assumption that drives their conclusion that liquidity traders have a preference for high disclosure exchanges given the fact that the only difference between securities trading on different exchanges is the probability of incurring a loss by trading against informed traders. However, it is very much an open question in the finance literature whether securities with higher levels of informed trading have the same return as securities with lower levels of informed trading.[136] Fundamentally, they formally make the assumption implicit in Mahoney's argument: exchange features that are unattractive to investors, such as lax disclosure standards, are not priced by the market.

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[135] Id. at 243.

[136] See David Easley, Soeren Hvidjkaer, and Maureen O'Hara, Is Information Risk a Determinant of Asset Returns?, 57 Journal of Finance 2185 (2002) (finding that stocks with higher levels of trading by traders with private information, the higher the stock's return).

Most importantly, neither argument addresses what happens when exchange rules affect the ability of those who control firms to engage in diversion of corporate assets or the level of competition faced by the firm by virtue of revealing promising lines of business. An ability, incidentally, that is not obviously affected by which exchange attracts liquidity traders. An exchange will have a powerful incentive to provide a lax disclosure regime if enough listed companies on an exchange, or firms eligible for listing on the exchange, have an interest in a poor disclosure regime even if this implies a higher cost of external finance for firms as a result of undesirable exchange rules being priced by the market. Indeed, an attempt by an exchange to maximize trading volume might very well lead it to offer a lax disclosure regime so as to maximize the number of listed securities traded on the exchange.

The famous one-share one-vote controversy over the New York Stock Exchange's (NYSE) listing rules provides a modern illustration of exchange solicitousness of the preferences of listed firms. The NYSE had since 1926 an exchange listing rule expressly prohibiting dual class common stock.[137] A rule, incidentally, that had received significant academic support as good policy.[138] When General Motors, one of the larger NYSE-listed companies, issued dual class common stock in 1982 in clear violation of this rule, the NYSE refused to take any action against General Motors. Indeed, the NYSE seriously considered changing its longstanding rule prohibiting dual class common stock

[137] See Jeffrey Gordon, Ties that Bond: Dual Class Common Stock and the Problem of Shareholder Choice, 76 Cal. L. Rev. 1 (1988) for a detailed discussion of this episode.

[138] See Marcel Kahan, Some Problems with Stock Exchange-Based Securities Regulation: A Comment on Mahoney's Exchange as Regulator, 83 Vir. L. Rev. 1509 (1997).

in response to General Motors' actions. The issue was finally moot when the SEC stepped in and restricted the use of dual class common through regulation.[139]

Some commentators have suggested that a similar dynamic was at work in the United States at the turn of the century. The NYSE appeared to be reluctant to impose meaningful disclosure requirements on listed firms at the turn of the century due to the opposition of firms with controlling shareholders, often families, who preferred not to be bound to disclose information.[140] Not until the exchange was under intense governmental pressure, as will be detailed in the next section, did the NYSE meaningfully improve its disclosure requirements.

2. Legal and Exchange Disclosure Requirements

The legal requirements, imposed by common law or state statutes, on firms' obligations to disclose at the turn of the century were quite limited. While American common law formally gave the right to a shareholder to inspect a corporation's books, this right was apparently seldom exercised. Typically, a lawsuit was required to force a corporation to disclose information to a shareholder.[141] Moreover, this right existed only once one became a stockholder, i.e. after a purchase decision had already been made.

The common law of fraud, as well as some state statutes, at this time did provide a cause-of-action for fraudulent statements, but this had two important limitations. First, a

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[139] See Regulation 19c-4, Exchange Act Release 10,304 (1988).

[140] See David F. Hawkins, The Development of Modern Financial Reporting Practices Among American Manufacturing Corporations, in MANAGING BIG BUSINESS 135, 166-67 (Richard S. Tedlow & Richard R. John, Jr. eds., 1986).

[141] See L.C.B. Gower, Some Contrasts between British and American Corporation Law, 69 Harvard Law Review 1369, 1380 (1956).

cause-of-action based on fraudulent statements was limited to affirmative misstatements. There was no affirmative obligation to disclose information.[142] Second, class action lawsuit were not available at this time which makes it difficult at best, as a practical matter, for small investors to enforce their rights in a cost effective manner. Even if securities class action lawsuits had been recognized at the time, it would still be virtually impossible for a class to be certified based on a claim of fraud due to the requirement that each individual establish that they "relied" upon the fraudulent misstatements.[143] The requirement to prove reliance made it more difficult for individual investors, even if they did decide to bear the costs of a lawsuit, to recover. One of the major changes introduced by the Securities Act of 1933 was to remove the common law requirement of reliance from its main liability provisions.[144] The difficulty of recovery under the common law of fraud made it less likely that firms which did voluntarily release information would be subject to liability as a result of any misstatements or falsehoods contained in their releases.

In the 1880-1910 period there were relatively few disclosure obligations placed on firms as the result of state statutes. The most notable exception was the obligation under some state statutes for banks to disclose information.[145] The first so-called "blue sky" law, state laws that regulated the issuance and trading of securities typically through

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[142] Stuart Banner, ANGLO-AMERICAN SECURITIES REGULATION 243 (1998).
[143] See Cross v. Sackett, ,15 N.Y. Super 617, 648 (1858) (plaintiff must show that he was "fraudulently induce[d] to act to his prejudice")
[144] See sections 11 and section 12 of the Securities Act of 1933.
[145] See Adolf Berle, Corporations and the Public Investor, 20 American Economic Review 54 (1930).

a combination of anti-fraud rules and registration requirements, was adopted by Kansas only in 1911.[146]

What of exchanges' imposition of disclosure standards on firms that trade on their markets? While it is true that the NYSE's disclosure requirements, circa 1931, were impressive (and formed the basis for the content of the mandatory disclosures imposed in the Securities Act of 1933) this does not establish that exchange disclosure regulation was demanding at the turn of the century. In fact, the NYSE's disclosure requirements as of 1931 were the product of changes in exchange disclosure regulation at the very end of 1880-1910 period or the post-1910 period. Moreover, these changes were the result, at least to a significant extent, not of competition from other markets but of governmental pressure on the NYSE.

The NYSE's requirement that firms update their financial statements – a crucial component of any meaningful disclosure regime – occurred at the end of the 1880-1910 period. Prior to the Panic of 1907, the NYSE generally did not enforce any obligation for firms to update their financial information.[147] Moreover, the NYSE prior to the Panic of 1907 allowed securities of firms not listed on the exchange to nevertheless trade (so-called unlisted trading) on the exchange. The volume of unlisted trading transactions on the NYSE was substantial with very little in the way of firm disclosures by unlisted firms.[148] These unlisted firms did not have to meet the disclosure requirements contained

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[146] See generally Jonathan R. Macey & Geoffrey P. Miller, Origin of the Blue Sky Laws, 70 Texas Law Review 347 (1991).

[147] The NYSE did in 1895, however, recommend that firms update their financial statements. Moreover, some firms agreed in their listing agreements to distribute annual reports. The extent of the information actually released in these reports will be discussed in Part 3.

[148] See David F. Hawkins, The Development of Modern Financial Reporting Practices Among American Manufacturing Corporations, in MANAGING BIG BUSINESS 135, 150 (Richard S. Tedlow and Richard R. John, Jr. eds., 1986) ("The companies whose stocks were noted by the

in the NYSE's listing standards. These unlisted firms had no obligation to update financial information.[149] Several large, important firms, such as American Sugar Refining, National Lead and U.S. Leather, were traded on the NYSE's unlisted trading market.

The Hughes Commission, established by the state of New York in the aftermath of the Panic of 1907, was charged with investigating the practices of the NYSE.[150] As a result of its investigation, the Hughes Commission Report (herein "Report") found the periodic disclosures by firms on the NYSE to be wanting. This finding was not surprising for two reasons. First, the only meaningful penalty that the NYSE could impose for non-compliance was de-listing. This was an action rarely undertaken.[151] It was not surprising for a second reason. The NYSE allocated very few resources to enforcement of the listing requirements. The NYSE listing committee was charged with approving firms for listing and enforcing compliance with listing standards.[152] As of 1914, the NYSE listing committee consisted of just five individuals.[153] Indeed, the chairman of the NYSE listing committee testified that unless there was an item that was patently suspicious, the listing committee accepted all the statements made by a firm as accurate.[154]

Unlisted Department (mainly industrials) were not required to furnish the Exchange with financial information relevant to the issue.")

[149] Securities and Exchange Commission, Report on Trading in Unlisted Securities 1-5 (1936).

[150] Moreover, there was proposed legislation at the national level to regulate the NYSE.

[151] See generally Joel Seligman, The Historical Need for a Mandatory Corporate Disclosure System, 9 Corp. L. 1, 12-32 (1983)

[152] See Stock Exchange Practices: Hearings on S. Res. 84 Before the Senate Commission on Banking and Currency, 73rd Cong., 2nd Sess. (1933)

[153] See Regulation of the Stock Exchange: Hearings on S. 3895 Before the Senate Committee on Banking and Currency, 63rd Cong., 2nd Sess. at 204 (1914)

[154] See Stock Exchange Practices: Hearings on S. Res. 84 Before the Senate Commission on Banking and Currency, 73rd Cong., 2nd Sess. 70 (1933)

The Report made several recommendations as a result of the Hughes Commission's investigation. It recommended that the NYSE "adopt methods to compel the filing of frequent statements of the financial condition of the companies whose securities are listed, including balance sheets [and] income accounts." Moreover, the Report recommended that the "unlisted department, except for temporary issues, [ ] be abolished."[155] Wisely, the NYSE adopted most of the Report's recommendations, including enhanced efforts to ensure that firms periodically update balance sheet and income statements and the prohibition of unlisted trading.[156]

Nor was the NYSE alone. The New York Curb Exchange, an important market with significant trading volume, was strongly criticized in the Report for its lack of listing standards. After the Report's recommendations came out, the New York Curb Exchange adopted a listing department and listing standards.[157] These listing standards were later significantly strengthened in the aftermath of the crash of 1929 when the New York Curb Exchange's practices were the subject of Senate hearings.[158]

Finally, when one looks at exchanges other than the NYSE the disclosure requirements, and their enforcement, were quite lax. For instance, the Chicago Stock Exchange had no requirement that financial information disclosed by listed companies

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[155] Hughes Commission Report, p. 425.

[156] See David F. Hawkins, The Development of Modern Financial Reporting Practices Among American Manufacturing Corporations, in MANAGING BIG BUSINESS 135, 150 (Richard S. Tedlow and Richard R. John, Jr. eds., 1986) ("Subsequently, in 1910, under growing threats of government regulation, the New York Stock Exchange abolished its Unlisted Department."); see Regulation of the Stock Exchange: Hearings on S. 3895 Before the Senate Committee on Banking and Currency, 63rd Cong., 2nd Sess. 286 (1914) (explaining efforts of the New York Stock Exchange to ensure that the Hughes Commission recommendation that there be more frequent reporting was actually implemented.).

[157] See Twentieth Century Fund, SECURITY MARKETS 254 (1935).

[158] See Securities and Exchange Commission, Report on Trading in Unlisted Securities 8-10 (1936)

had to be updated.[159] While unlisted trading was barred on the NYSE after 1910, unlisted trading, with little in the way of disclosure requirements, continued to constitute a substantial portion of trading on many of the other exchanges.[160] Virtually all the securities traded on the New York Curb Exchange, for instance, were unlisted. The vast bulk of these unlisted securities were not listed on another exchange.

None of this is to suggest that exchanges have no incentive to impose disclosure standards. Nor does the U.S. history of listing standards even show that exchanges in the pre-mandatory disclosure period adopted insufficiently rigorous disclosure standards. A recital of disclosure standards and enforcement mechanisms cannot establish this. What the historical evidence canvassed above does undermine, though, is the claim that there were demanding disclosure requirements placed on firms by exchanges in the 1880-1910 period.

3. Empirical Evidence on the Level of Disclosure: 1880-1910

Nor did most firms, on their own, voluntarily submit meaningful annual reports in the 1880-1910 period. Indeed, a number of important firms, such as the American Sugar Refining Company, at this time released no annual reports. The annual reports that were released tended to be quite short with relatively little in the way of detail. Major companies, such as the International Silver Company and the American Tin Plate Company, whose stock was traded on the NYSE, released very few details of any sort in

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[159] See Regulation of the Stock Exchanges: Hearings on S.3895 Before the Senate Commission on Banking and Currency, 63rd Cong., 2nd Sess. 757 (1914).

[160] See Securities and Exchange Commission, Report on Trading in Unlisted Securities 4, 29 (1936).

their annual report. The Eastman Kodak annual report of 1903, replicated in the Appendix, is representative of a large number of annual reports of this time period.[161] This being said, there were nevertheless some companies, most notably U.S. Steel starting with its annual report of 1903, that did provide relatively in-depth financial information.[162] In short, the overall level of disclosure contained in the annual reports during this time period was low, but not uniformly low.

There were, not surprisingly, also correspondingly low levels of reporting of firm financial information by the financial press. The *Commercial and Financial Chronicle*, the leading financial publication of the day, reported to its readership financial information on approximately only fifteen firms as of 1890.[163] Firm coverage in the *Commercial and Financial Chronicle* increased in later years, but most traded firms still received no coverage whatsoever.[164]

In short, the evidence is inconsistent with the claim that dispersed ownership was the result of firm disclosures providing the assurance small investors needed to purchase shares. Indeed, there is some reason to believe that enhanced disclosures would not have necessarily been in the interests of shareholders in a corporation with a dispersed ownership structure. While increased firm disclosure might provide increased assurance to small investors considering buying stock in a firm that they are not overpaying, it also

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[161] The Eastman Kodak annual report's barebones balance sheet is representative of a majority of annual reports issued during this period. This statement is based on a survey of all the annual reports filed between 1880-1910 that are in the Harvard Business School's Annual Report collection.

[162] Some have argued that U.S. Steel's 1903 annual report was the first modern annual report. The annual report contains some forty pages of detailed financial information on the company.

[163] See Naomi Lamoreaux and Jean-Laurent Rosenthal, Legal Regime and Business's Organizational Choice: A Comparison of France and the United States During the Mid-Nineteenth Century, NBER Working Paper 10288, p. 7 (2004).

[164] See Commercial and Financial Chronicle (years: 1891 -1910)

have the unwanted effect of providing increased assurance to potential acquirers of the firm that they too are not overpaying if they decide to acquire the firm against target management's wishes. In a world where potential acquirers could loot the company, or otherwise take actions detrimental to minority shareholders (such as a squeezeout of minority shareholders' interests at an unfavorable price), an increase in the probability of an acquisition was not necessarily in the shareholders' interests. In turn, this makes a move towards a dispersed ownership structure by a controlling shareholder less likely in the first place as they would receive less per share from would-be shareholders with rational expectations.[165]

Even today, with the mandatory disclosure requirements of the Securities Act of 1933 and Exchange Act of 1934 in place, potential acquirers of firms typically require access to a firm's books before being willing to submit a firm offer.[166] Recent research suggests that hostile takeovers only occurred in Great Britain after the introduction of meaningful mandatory disclosure requirements in the Company Act of 1948.[167] Before this date, takeovers where always negotiated deals between acquirers and target management.[168]

The possibility of looting by controlling shareholders or potential acquirers was a real one given the weakness in corporate law's protections of minority shareholders in the

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[165] See Lucian Bebchuk, A Rent Protection Theory of Corporate Ownership and Control, NBER Working Paper 7203 (1999) (dispersed ownership structures less likely when adoption of such a structure would result in an uncompensated transfer of control from one controlling party to another controller through an acquisition)

[166] See Guhan Subramanian, Bargaining in the Shadow of Takeover Defenses, 113 Yale Law Journal 621 (2003) (describing the importance of the standstill agreement by which potential acquirers gain access to a firm's books)

[167] See Julian Franks, Colin Mayer, and Stefano Rossi, The Origination and Evolution of Ownership and Control, Working Paper (2002).

[168] Id. at

United States at the turn of the century. The rise of dispersed ownership during this period is inconsistent with minority protection being a key explanatory variable (as it is in the LLSV studies) of stock market development and the extent to which external finance is utilized. The corporate law at the turn of the century will be examined in more detail in the next section.

B. Corporate Law

One important source of protection corporate law can provide shareholders is prohibitions on insider trading by corporate officials and controlling shareholders. In the absence of insider trading prohibitions, uninformed outside investors will know that there is a possibility when they trade that they are trading against a party utilizing insider information. Insider trading prohibitions can remove these expected trading losses and thereby increase the price investors are willing to pay for a firm's securities. Recent empirical research has found that insider trading prohibitions, if they are actually enforced, decrease the cost of equity.[169]

Neither at the federal nor the state level was there insider trading prohibitions at the turn of the century. The first restrictions on insider trading in the United States were contained in the Exchange Act of 1934. These restrictions were quite limited, however. Section 16 of the Exchange Act prohibited (enforceable only privately) short-swing trading by high-level corporate officials. The first insider trading case was not brought

[169] See Bhattacharya & Daouk, The World Price of Insider Trading, forthcoming Journal of Finance

by the Securities and Exchange Commission until 1961.[170] The Securities and Exchange Commission's position on the illegality of insider trading was not clearly endorsed by the Second Circuit Court of Appeals until 1968 in the *Texas Sulphur* decision.[171]

In terms of directors' and corporate officials' fiduciary obligations to the corporation, state corporate law at the turn of the century appeared, at least as a formal matter, to provide some meaningful protection to investors. When a corporate official engaged in a self-dealing transaction, such as a sale of assets by the corporation to another firm owned by the official, courts would assess whether the transaction passed the so-called "intrinsic fairness" test.[172] Under "intrinsic fairness" the substantive terms of the transaction had to be reasonable in the court's judgment. As they do now, corporate officials owed a duty of loyalty and a duty of care to the corporation.

There were three significant limitations, however, to the extent to which fiduciary duties, and corporate law more generally, actually protected investors from expropriation by insiders or controlling shareholders. First, it was quite difficult for investors to know when self-dealing transactions were actually occurring given the low level of disclosure by firms. Second, the limitations imposed on the operation of the corporation were only enforceable, as a general matter, by private parties, i.e. investors. There was no public agency, such as the Securities and Exchange Commission, that was charged with bringing enforcement actions against corporate mismanagement. The closest analogue was governmental investigations, such as the Hughes Commission, after a public outcry or a series of scandals. Finally, the integrity of state judges, as well as legislators, was

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[170] See Cady, Roberts & Co., 40 S.E.C. 907 (1961).
[171] SEC v. Texas Sulphur, 401 F.2d 833 (2d. Cir. 1968) (en banc), cert. denied, 394 U.S. 976 (1969).
[172] See generally Lawrence Friedman, A HISTORY OF AMERICAN LAW 447-460 (1973)

questionable during this period. The judicial bribery that occurred during the famous battle for control of the Erie Railroad between Commodore Vanderbilt and Daniel Drew and Jay Gould is but one example, albeit dramatic, of judicial corruption.[173]

In truth, systematic evidence on the level of private benefits of control, one proxy of the extent to which outsider investors suffer at the hands of insiders and controlling shareholders, at the turn of the century is lacking. Brad De Long did find that the presence of a J.P Morgan agent on a firm's board of directors resulted in a substantial increase (in the range of 30%) in the value of the firm's common stock.[174] This finding is consistent with the view that, absence monitoring (or credible signaling by the firm that it is not engaging in expropriation), the level of private benefits of control were substantial in this period.

IV. CONCLUSION

This paper has attempted to shed some light on two related questions. First, when did ownership dispersion occur in the United States? Second, can ownership dispersion be explained by high-quality securities and corporate regulation?

As for the first question, a case study of AT&T and New England railroads suggests that dispersion of ownership was occurring, at least for some firms, in the 1880s and 1890s as well as the 1900-1910 period. Moreover, the dispersion patterns are consistent with the view that dispersion was being driven by merger and acquisition activity diluting controlling shareholders' stakes. As for the second question, an

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[173] See generally Edward Rock, Encountering the Scarlet Woman of Wall Street: Speculative Comments at the End of the Century, 2 Theoretical Inquires L. 237 (2001).

[174] See Bradford De Long, Did J.P. Morgan's Men Add Value? An Economist's Perspective on Financial Capitalism, in INSIDE THE BUSINESS ENTERPRISE (Peter Temin ed., 1991).

examination of disclosure regulation, and the actual disclosures by firms during this period, as well as corporate law at the turn of the century reveals that it is unlikely that dispersion in the United States in the 1880-1910 period can be explained by the presence of an effective high-quality regulatory regime a la the LLSV account.

EASTMAN KODAK COMPANY OF NEW JERSEY

COMBINED BALANCE SHEET

LIABILITIES

CAPITAL STOCK:		
Preferred Stock authorized...	$10,000,000	
of which there has been issued,	$6,170,368.01	
Common Stock authorized, ...	25,000,000	
of which there has-been issued,	19,356,000.67	
	$25,526,368.68	
LESS: Calls unpaid	705,292.50	$24,821,076.18
CAPITAL STOCK OF SUBSIDIARY COMPANIES OUTSTANDING		42,000.00
CURRENT LIABILITIES:		
Accounts Payable, ...	554,031.28	
Preferred Stock, Dividends payable January 1st, 1904	90,080.07	
Common Stock, Dividends payable January 1st, 1904	470,872.56	
$1,114,983.91		
SURPLUS:		
Balance of 31st December, 1902 per Balance Sheet	$468,999.29	
Profits of Combined Companies for the year Ending 31st December 1903.	2,925,691.16	
	$3,394,690.45	
DEDUCT:		
Dividends and Interest,		
6% on Preferred Stock.....	$368,058.57	
10% on Common Stock	1,866,804.77	
	$2,234,863.34	
On Outstanding Stock of Sub-sidiary Companies	400.00	
	$2,235,863.34	
Special Reserves	78,404.18	
		$2,313,667.52
$1,081,022.93		
$27,081,022.93		

AND ITS SUBSIDIARY COMPANIES.
31ST DECEMBER, 1903.

ASSETS:

COST OF PROPERTY, including Real Estate, Buildings, Plant, Machinery, Patents and Good Will,		$17,513,685.54
CURRENT ASSETS:		
Merchandise, Materials and Supplies,	2,512,325.17	
Accounts and Bills Receivable,	1,043,996.45	
Railway Bonds and other Investments,	1,753,594.58	
Call Loans,	650,000.00	
Cash at Banks and on Hand,	3,200,269.58	
Miscellaneous,	285,211.70	
		$ 9,545,397.48
		$27,059,083.02

We have examined the books of the Eastman Kodak company of New Jersey, and of Kodak Limited for the year ending December 31 1903 and we have been furnished with certified returns from the American and European Branches, The Kodak Gesellschaft and the Societe Anonymè Francaise for the same period and we certify that the Balance Sheet at that date is correctly prepared therefrom.

We have satisfied ourselves that during the year only actual additions and extensions have been charged to cost of property and that ample provision has been made for Depreciation.

We are satisfied that the valuations of the Inventories of stocks on hand, as certified by the responsible officials, have been carefully and accurately, full provision has been made for Bad and Doubtful Accounts Receivable and for all ascertainable Liabilities.

We have verified the cash and securities by actual inspection and by certificates from the depositories, and are of opinion that the stocks and bonds are fully worth the value at which they are stated in the Balance Sheet.

And we certify that in our opinion the Balance Sheet is properly drawn up so as to show the true financial position of the Company and its Subsidiary Companies, and the Profits thereof for the year ending at that date.

(Signed) PRICE,, WATERHOUSE & Co.
Chartered Accountants

54 William Street,
New York City
28th March, 1904