THIRTY YEARS OF CORPORATE GOVERNANCE: FIRM VALUATION & STOCK RETURNS

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Abstract

This paper introduces a dataset tracking approximately 1,000 firms' G- and E-index scores, as well the individual corporate governance provisions constituting these indexes, over the 1978-1989 period. Combining this data with the 1990-2006 IRRC data, we are able to track firms' corporate governance over a thirty year period. Most governance changes occurred during the 1980s (with relative stability thereafter). We find a robustly negative association between the G- and E-Index and Tobin's Q for the 1978-2006 period, even when using firm fixed effects, and little direct evidence for reverse causation. The negative firm valuation effects of classified boards, poison pills and G-Index generally was significantly greater after the judicial approval of the poison pill in 1985, which can be considered as a largely unanticipated, exogenous shock to corporate governance. Moreover, G-Index changes have a much stronger negative association with firm valuation when a firm is in an industry experiencing "high" levels of M&A activity. Finally, we find a robust positive association between "good" corporate governance and abnormal returns for the 1978-2006 period. The abnormal returns association with governance was strongest in the beginning of our 1978-2006 time period and generally declining thereafter, consistent with an explanation of these returns based on the market learning the importance of good governance.

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I. INTRODUCTION

In this paper, we introduce a comprehensive corporate governance database starting in 1978 and ending in 1989, which tracks for a sample of approximately 1,000 unique firms whether these firms had any of the 24 corporate governance variables that constitute the G-Index of Gompers, Ishii and Metrick (2003). The computation of this index for the 1990-2006 period is based on data compiled by the IRRC (Investor Responsibility Research Center). The IRRC database became very prominent in empirical corporate governance research after the introduction of the G-Index and the documentation of its strong empirical link between governance and equity prices. The G-Index is a composite of the twenty-four variables, adding one point if any of the provisions is present, where a higher score indicates more restrictions on shareholder rights or a greater number of anti-takeover measures. The E-Index of Bebchuk, Cohen, and Ferrell (2009) is based on six of the twenty-four G-Index provisions.

Based on our corporate governance database, we calculate each firm's G-Index and E-Index scores starting in 1978. By combining our dataset with the IRRC database which covers the 1990-2006 time period, we obtain comprehensive corporate governance data for the 1978-2006 time period. In turn, we combine this corporate governance data with data on M&A activity, firm financials, institutional ownership, and stock returns.

Besides the introduction of our database, our focus in this paper is two-fold: the relationship between governance and firm valuation and the relationship between governance and abnormal stock returns over the 1978-2006 time period. The importance of having data for the 1978 – 1989 period is underscored by the fact that this period is characterized by widespread corporate governance changes (i.e., changes in firms' G-Index and E-Index scores), while after 1990 such changes largely cease. For example, the median G-Index score equals 5 from 1978 – 1983, then increases by one a year until 1989, while the distribution of the G-Index remains basically constant after 1990. Further, four out of the six E-Index provisions (supermajority merger, classified board, poison pill and golden parachute) experienced dramatic increases in their incidence during the 1978-1989 period, with their incidences remaining relatively stable thereafter.

A second reason for the value of including data from this period in analyzing these relationships, besides the time variation in corporate governance arrangements, is the fact that both M&A activity and the law surrounding the use of antitakeover defenses (and specifically when a target board's can legally use them to fend off unwanted acquisition offers) was in

considerable flux during the 1978-1989 period, introducing both cross-sectional and time variation in how much governance can ex ante be expected to matter in the data, which we will exploit in our analysis.

Turning to the central issue of the relationship between governance and firm valuation, we find a robust statistically significant negative association between poor governance and firm valuation over the 1978-2006 period. In particular, the inclusion of firm fixed effects in pooled panel regressions mitigates the endogeneity of firms adopting governance provisions depending on their heterogeneous circumstances. Using both firm and year fixed effects, we document a robust negative and economically meaningful association between the G-Index and Tobin's Q. This finding survives various robustness checks.

We find, however, no evidence in support of the "reverse causation" explanation for this negative association in the 1978-1989 period, i.e. that firms with lower firm value tended to adopt more G- and E-Index provisions. In fact, we find that the higher valued firms tended to adopt more provisions, although this relationship disappears once firm and year fixed effects are included. The "reverse causation" may play a (economically very minor) role in explaining changes in firms' corporate governance in the 1990-2006 time period.

In order to more fully understand the relationship between governance and firm valuation, we explore whether governance affects firm valuation through a takeover channel, i.e. by affecting the probability of a firm receiving a takeover and, hence, target shareholders receiving an attractive takeover premium. We undertake three sets of analyses along these lines. First, we examine the impact on governance's firm valuation effects of the Delaware Supreme Court's seminal decision in 1985 in the *Moran v. Household International* decision, which for the first time judicially validated the adoption of a poison pill as within the authority vested with a target firm's board. The decision in *Household* was not expected, as evidenced by the discussion and debates of prominent corporate lawyers and corporate law scholars prior to 1985 and the fact that the Securities and Exchange Commission filed a brief in *Household* arguing that the use of the poison pill was illegal. Consistent with a causal relationship between governance and firm value and the potential importance of a takeover channel, we find that the negative effect on firm valuation of certain antitakeover provisions (classified boards, poison pills and the G-Index generally) only exists after the *Household* decision (with generally no effect before 1985).[1]

[1] Classified boards are far more potent as an antitakeover defense when used in conjunction with a poison pill, see e.g. Gilson (1981) and Bebchuk, Coates, and Subramanian (2002).

Second, if poor governance reduces firm value by reducing the likelihood of an attractive offer being received and accepted by the board, then the negative effects of poor governance should be particularly powerful when a firm in a given year happens to be in an industry experiencing "high" levels of M&A activity relative to firms in industries experiencing "low" levels. It is worth noting that M&A activity occurs in industry waves (see e.g. Mitchell and Mulherin (1996)) in response to unexpected exogenous shocks to industry structure, regulation or technological innovation. And, indeed, we document that increases in a firm's G-Index score have a larger negative effect on firm valuation when a firm happens to be in an industry that is experiencing "high" levels of M&A activity relative to a firm that increase its G-Index score but is in an industry experiencing "low" levels of M&A activity in that particular year.

Third, we examine the relationship between governance and operating performance, a plausible alternative channel by which governance can affect firm valuation other than a takeover channel. We fail to find any robust statistical association between accounting profits or sales growth and governance over the 1978-2006 period.

Turning to the relationship between firm valuation and abnormal stock returns, Gompers, Ishii and Metrick (2003) document that firms with higher (lower) G-Index scores have lower (higher) subsequent stock returns. This finding has generated a substantial literature with a number of explanations, see e.g. Cremers and Nair (2005), Core, Guay, and Rusticus (2006), Johnson, Moorman, and Sorescu (2008), Bebchuk, Cohen and Ferrell (2009) and Cremers, Nair and John (2009). Our longer time period, and the time variation in corporate governance arrangements, enables us to make a number of findings that bear on this literature.

We document that for the full 1978-2007 time period, whether using value-weighted or equally-weighted portfolios, that there are positive, strongly statistically significant positive abnormal returns (using the Fama-French-Cahart four-factor model) associated with going long good corporate governance firms and shorting those with poor governance (whether proxying the quality of corporate governance by the G- or E-Index). Second, we find that abnormal returns for equally-weighted portfolios over the 1978-2007 period is robust to industry-adjusting as described in Johnson, Moorman, and Sorescu (2008). Third, our analysis of returns suggest that governance seems to matter most for smaller capitalization stocks and that the association between governance and abnormal returns generally appears to decline over our time period with the time trend for equally-weighted abnormal returns being strongly statistically negative over the 1978-2007 period.

We interpret these governance-related abnormal return findings as consistent with 'learning,' i.e., investors learned gradually over time the importance of good governance, which

is reflected in the fact that abnormal returns were largest in the beginning of our time period and then generally declined thereafter. On the other hand, we fail to find evidence for a risk-based explanation for the abnormal return results (Cremers, Nair and John (2009). Nor do we find evidence for an explanation based on managers adopting G-Index provisions in anticipation of poor operating performance or evidence for the explanation that there are "other characteristics" associated both with being a low or high G-Index firms and abnormal stock returns.

The remainder of this paper is organized as follows. Part II describes the data. As one of the major contributions of this paper is the introduction of the new dataset of corporate governance provisions over 1979-1990, we go into significant detail on the data collection process and how the data compares to the IRRC sample. Part III explores the relationship between governance and firm valuation over the 1978-2006 time period as well as the issue of whether low-valued firms tend to adopt more G-Index provisions. In Part IV, we examine whether the negative firm valuation effects of poor governance are attributable to a takeover channel. This includes our analysis of the effect of the *Household* decision, the interaction of industry-level M&A activity and firms' G-Index scores, and the relationship between governance and operating performance. Part V investigates abnormal stock returns accruing to governance-sorted portfolios and Part VI concludes.

II. DATA

1. The 1978-2006 Corporate Governance Dataset

RiskMetrics (which acquired the Investor Responsibility Research Center (IRRC)) has maintained a corporate governance database which has served as an extremely important source of data on firms' corporate governance provisions beginning as of 1990 since the publication of Gompers, Ishii & Metrick (2003). The IRRC data has now been used in a large number of published academic articles on corporate governance plus many more that are currently still in working paper form. The IRRC database covers a number of firm-level corporate governance provisions, firms' states of incorporation, a firm's governing corporate law statutes and firm opt-ins and opt-outs thereto. A number of the firm-level provisions concern the presence of takeover provisions (such as classified boards and poison pills), the presence of certain types of compensation arrangements (such as golden parachutes and compensation plans), and a variety of additional provisions that affect the balance of power between managers and shareholders (such as supermajority voting requirements for amending the firm's charter or bylaw). The G-Index, which consists of twenty-four corporate governance provisions, is based on the IRRC's

firm-level corporate governance provisions and a firm's governing state corporate law statutes (and opt-ins and opt-outs thereto).

In total, the IRRC corporate governance database covers twenty-three firm-level corporate governance provisions for selected firms in 1990, 1993, 1995, 1998, 2000, 2002, 2004 and 2006. Each one of these volumes contains this corporate governance data for between 1,400 and 1,800 firms for the selected year. 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 (Bebchuk, Cohen and Ferrell (2009)). The IRRC also contains data on firm's governing state corporate law statutes and opt-ins and opt-outs thereto. The IRRC corporate governance database does not include any of this data prior to 1990 (nor on an annual basis after 1990). As a result, information on firms' G-Index scores has simply not been available on a similar comprehensive basis for earlier time periods. As a result, studies using the IRRC database have been forced to begin their analysis in 1990.

We have comprehensively collected data for the 1978-1989 time period (inclusive) on (i) firms' firm-level corporate governance provisions (including those variables tracked by the IRRC for the 1990-2006 time period); (ii) state corporate law statutes (including those tracked by the IRRC for the 1990-2006 time period); and (iii) states' corporate law default rules (this last category not being tracked by the IRRC at all). We also track firm-level corporate governance provisions for the 1978-1989 time period beyond those tracked by the IRRC (and utilized by the G- and E-Indexes), but will not include a description here of the data collection process for these additional variables given that we confine our attention in this paper to the G- and E-Indexes and their constituent corporate governance variables.[2]

We then combined our dataset with the corporate governance data maintained by IRRC for the 1990-2006 period resulting in a corporate governance dataset covering a total of about

[2] These additional corporate governance variables include: (1) whether the board or shareholders are granted the power to fill vacancies on the board; (2) maximum board size; (3) actual board size; and (4) whether shareholders have the power, by majority vote, to remove a director with or without cause (or whether, instead, a supermajority vote is required for removal or director removal by shareholders is limited to "for cause"). These additional corporate governance variables can arguably be quite consequential. Whether the current directors or the shareholders have the power to fill vacancies on a board, such as a vacancy caused by death, resignation or an increase in the board's size (variable 1) can be quite important in different contexts. For example, a board that can increase the size of the board and unilaterally appoint the directors that will fill the vacancies thereby created can effectively "pack" the board (Coates 2001). Whether the board's size can, in fact, be increased will turn on the difference between actual and maximum board size (variables 2 and 3). Actual board size can also modify the effects of a firm having cumulative voting (variable 3). In general, the impact of cumulative voting tends to become less important as the board size decreases (Bhagat & Brickley 1984). Whether shareholders have the power to remove a director without cause can obviously affect the balance of power between shareholders and management (variable 4). We also coded state defaults, which are relevant when the firm's charter or bylaw is silent on an issue, with respect to whether a majority of shareholders can fill board vacancies (relevant to variable 1) and whether a majority of shareholders under the state's default rule can fire directors without cause (variable 4).

2,200 of firms over the 1978-2006 (inclusive) time period. Next, we combined the resulting 1978-2006 corporate governance database with (i) Compustat data containing financial data on each firm for the 1978-2006 period; (ii) CRSP return data for the 1978-2006 period; (iii) SDC Platinum's data on merger and acquisition activity for the 1979-2006 period, including data on friendly, leverage buyout and hostile takeovers;[3] and (iv) Thompson Financial data of institutional holdings (13F).

We will describe our construction of our 1978-1989 corporate governance dataset in five steps. First, we will provide an overview of the content of our corporate governance database. Second, we address the compatibility of our dataset with that of the IRRC, which covers the subsequent 1990-2006 time period. Third, we provide a description how the firms were selected for inclusion in our dataset. Fourth, we describe the wide variety of the data used to gather information on firms' firm-level corporate governance provisions, state corporate law statutes, state corporate law default rules and opt-in and opt-outs thereto. Fifth and finally, we describe various controls we conducted to ensure the accuracy and completeness of our data.

2. Content of the 1978-1989 Corporate Governance Database

a. Firm-Level Corporate Governance Provisions

The twenty-three IRRC firm-level corporate governance variables we track, which are also used in part in the construction of the G- and E-Indexes, for the 1978-1989 (inclusive) time period are: (1) cumulative voting; (2) poison pill; (3) confidential (secret) voting; (4) unequal voting; (5) dual-class shares; (6) classified board; (7) fair price provisions; (8) director indemnification provisions; (9) limits on the ability of shareholders to amend the corporate charters; (10) limits on the ability of shareholders to amend the corporate bylaws; (11) supermajority voting requirements for mergers; (12) anti-greenmail provisions; (13) limits on director liability; (14) limits on the ability of shareholders to call special meetings; (15) limits on the ability of shareholders to act by written consent; (16) pension parachutes; (17) golden parachutes; (18) silver parachutes; (19) compensation plans; (20) severance agreements; (21) director indemnification contracts; (22) blank check preferred; and a (23) firm's state of incorporation. The definitions of these variables are contained in the introduction to the 1990 IRRC volume as well as the appendix to Gompers, Ishii, and Metrick (2003). For every year for every firm in our database for the 1978-1989 time period, we attempted to code the presence or absence of these twenty-three firm-level corporate governance variables.

[3] The SDC Platinum merger and acquisition data begins in 1979 and not 1978.

b. State Defaults

Unlike the IRRC database, we also coded for several state defaults (i.e., the governing state rule when the company's charter or bylaw is silent on an issue) which can be quite important. Specifically, we coded for whether the state's default is to limit the ability of shareholders to call a special meeting (relevant to variable 14) and whether the state default is to limit the shareholders' ability to act be written consent (relevant to variable 15). State defaults were based on our researching the history of states' corporate law codes during the 1978-1989 period which was then double-checked against Coates (2001) and the Corporate Library's coding of these state defaults.

c. State Corporate Law Statutes

Whether a firm was subject to any of the following state corporate law statutes (information that is also necessary for constructing the G- and E-Indexes) was also coded: (1) business combination laws; (2) control share cash-out statutes; (3) control share acquisition statutes; (4) fair price statutes; (5) directors' duties statutes; (6) anti-greenmail statutes; (7) mandatory cumulative voting statutes; and (8) director liability statutes. The year of a statute's adoption was also coded to ensure that prior to adoption firms incorporated in that state were not treated as subject to the statute. The IRRC coded the first six types of antitakeover statutes, but not the last two – mandatory cumulative voting and director liability statutes – although the IRRC did track cumulative voting and director liability provisions if they were adopted by a firm by virtue of a provision in their charter or bylaw.

We collected information on state corporate law statutes from a number of sources. We gathered information on state antitakeover statutes from Jarrell & Bradley (1980), Bhagat & Brickley (1984), Gilson (1988), Karpoff & Malatesta (1989), Mahla (1991), IRRC STATE TAKEOVER LAWS (1999), and Betrand and Mullainathan (2003). For some state statutes, firms in their charters or bylaws could, if they wanted to, opt-out (or more rarely opt-in) of a state statute. Accordingly, whether firms opted-out or opted-in to any of the above state statutes in their charter or bylaw was also coded for when we coded firms' charters and bylaws.

Based on this data we coded for each firm in our database their E-Index score and their G-Index score.[4]

[4] The G-Index of a firm is the sum of the number of the following 24 provisions a firm has either by virtue of state law or a firm-level provision: (1) classified board; (2) limitation on amending bylaws; (3) limitation on amending the charter; (4) supermajority to approve a merger; (5) golden parachute; (6) poison pill; (7) limitation on special meeting; (8) limitation on written consent; (9) elimination of cumulative voting; (10) no secret ballot; (11) director indemnification; (12) director indemnification contract; (13) limited director liability; (14) compensation plan; (15) severance agreement; (16) unequal voting rights; (17) blank check preferred; (18) fair price requirements; (19)

3. Compatibility of the C-F Database with the IRRC Database

Substantial effort was taken to ensure that our coding of the IRRC variables during the 1978-1989 time period was consistent with the coding by the IRRC over the 1990-2006 time period. This was important given our goal of combining our database with the IRRC database to construct a comprehensive corporate governance database covering the entire 1978-2006 period.

Given the importance we attached to compatibility, we began our data collection by developing a detailed coding protocol for the twenty-three firm-level provisions that the G-Index is, in part, based on.[5] The coding protocol was based on replicating IRRC's coding for these twenty-three firm-level variables in the year 1990 for two hundred randomly selected firms covered by the 1990 IRRC volume. This was done by collecting and analyzing the two hundred firms' 1990 10-K, 10-Q, and documents and contracts attached thereto (which included firms' charters and bylaws and contracts relating to compensation arrangements). We then researched the applicable state corporate law, including state default rules, to calculate the presence or absence of each of the twenty-four G-Index provisions as of 1990.

Based on our (re-)construction of the IRRC coding protocol, we adopted the same coding protocol for nineteen of the twenty-four G-Index corporate governance variables. The remaining five G-Index variables – limits on the ability of shareholders to call special meeting, limits on the ability of shareholders to act by written consent, limits on anti-greenmail, limits on director liability and director duties – were not coded using the IRRC coding protocol we developed. The reason for this divergence with respect to the limits on the ability to call a special meeting variable is that the IRRC treats a firm as having no limit on the ability to call a special meeting if the firm's charter or bylaw is silent on the issue. However, for a number of states, including most prominently Delaware, the default is that shareholders cannot call a special meeting. A similar issue arises for limits on written consent. The state default in a number of states, such as New York and Ohio, is that a majority of shareholders cannot act by written consent. In other words, for both limits on special meeting and written consent silence in the charter or bylaws does not necessarily mean there are in fact no limits.

A second difference from IRRC is the number of state corporate law statutes we identify. This affects our coding of the anti-greenmail, limits on director liability and director duties variables (as will be documented in Table I, this only makes a material difference for the last two

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control share cash-out; (20) director duties; (21) business combination statute; (22) anti-greenmail provision: (23) pension parachute; and (24) silver parachute. A firm's E-Index is the sum of the first six of these provisions.

[5] The only G-Index provision that is calculated purely by examining a firm's governing state corporate law (and opt-ins and opt-outs thereto) is the control share cash-out variable.

variables). As for anti-greenmail statutes, we agree with all five states identified as having anti-greenmail statutes in the IRRC database (AZ, MN, NY, TN and WI) but with one addition. Michigan as of 1988 had an anti-greenmail statute, still in effect as of 1990, which is not coded as such in the IRRC. In addition to coding for charter and bylaw provisions that limit director liability, as IRRC also does, we identified five state statutes adopted during the 1980s that limited director liability without the need for a charter or bylaw provision (IN, OH, FL, WI and ME), so-called self-executing director liability statutes. Finally, as for director duties statutes, only two states (IN and PA) were identified as having these statutes in 1990 in the IRRC. We have identified a total of nineteen states (GA, HI, IA, ID, IL, IN, KY, LA, MA, ME, MI, MN, MY, NJ, NM, NY, OH, OR, and WI) that had a director duties statute at some point in the 1980s, all of which were in effect in 1990 (with a number of additional states passing director duties statutes in the 1990s such as Pennsylvania in 1990).

In order to test the compatibility as well as the accuracy of our coding, we compared the incidence of the twenty-four G-Index provisions as of 1989 in our database to the incidence of these provisions as reflected in the IRRC database as of 1990. This comparison is presented in Table I. For the nineteen G-Index provisions for which we used the same coding protocol as the IRRC, there were only two noticeable discrepancies. The incidence of director indemnification in our dataset is 96% while the IRRC reports an incidence of 41%. After checking a number of instances in which the IRRC reports no director indemnification provision against the firm's charter, we conclude that the IRRC has very substantially underreported the incidence of this provision. The second discrepancy is the incidence of blank check which is far higher in the IRRC database (76% versus 24% in our database). As for this variable, we have concluded that the IRRC's figure is likely the more accurate number given the spotty reporting of blank checks in firm's 10-Ks, our primary source of information for this variable. It is worth noting that the error in our blank check variable is a Type II error, i.e. our identification of firms with blank check is accurate but does not identify all firms with blank check. We have rerun the results reported in this paper without using the blank check variable and they remain qualitatively unaltered.

There are three other noticeable discrepancies between our data and that of the IRRC, as is obvious from Table I, and that is the incidence of limits on special meeting (88% in 1989 versus 24% in 1990), limits on written consent (71% in 1989 versus 24% in 1990) and director duties (38% in 1989 versus 10% in 1990). However, these discrepancies are not surprising given that we used a different coding protocol for these three variables than that used by the IRRC. Using our best efforts to incorporate state defaults for the first two of these variables and the

additional director duties statutes and incorporating this information into the IRRC's 1990 data, these discrepancies largely disappear (limits on special meeting in 1989 having an incidence of 88% versus 75% in 1990; limits on written consent having an incidence of 71% in 1989 and 64% in 1990; and director duties having an incidence of 38% in both 1989 and 1990).

Given these differences in coding of the G-Index provisions by IRRC and us, we constructed a "corrected" version of the G-Index for the 1990-2006 period, which we used in our analysis unless otherwise noted. In calculating the "corrected" version of the G-Index, we coded for the additional state statutes that we identified that affect the presence or absence of a G-Index variable. As a result, we collected data not only on state corporate law statutes in the 1978-1989 period but for the 1990-2006 period as well. This additional information affected the coding in the 1990-2006 period of the director duties, anti-greenmail, limitation on director liability, limitation on written consent and limitation on special meeting variables.[6]

We also created a G-Subgroup Index consisting of eighteen of the twenty-four G-Index provisions for which these coding differences were not an issue and calculated the value of this Subgroup for both the 1978-1989 time period as well as the 1990-2006 period using IRRC data. We used this G-Subgroup Index in various robustness checks to ensure that our results were not being driven by these differences in coding between our coding of the G-Index provisions for 1978-1989 versus the IRRC's coding for 1990-2006. The six provisions that were not included in our G-Subgroup Index were: limitation on special meeting, limitation on written consent, director indemnification, limits on director liability, blank check preferred and director duties. Finally, we also used as a robustness check the actual G-Index score as reported in IRRC for the 1990-2006 time period, which we label G-Index Uncorrected.

4. Firms Covered

The 1978 panel set in our database was based on an initial list of all firms that appear either (1) on the 1978 Fortune 1,000 list of firms; (2) in the S&P 500 as of January 1, 1978; or (3) had more than one billion dollars in sales for 1977 as reported in Compustat. The year 1977 was used for sales because inclusion in the Fortune 1,000 is based on 1977 data. Any firms that meet any of these three criteria were included in our 1978 panel if they met the following two additional conditions: (1) the firm was also tracked in the CRSP/Compustat merged database for 1978 (and could, therefore, be assigned a firm-specific CRSP permco number); and (2) had filed either a 10-K or proxy statement at any point in the 1978-1989 as reflected in the comprehensive

[6] We assumed that a state's corporate law default rule constitutes the actual firm-level provision for purposes of calculating limitations on written consent and limitations on special meeting in the 1990-2006 period.

SEC reports contained in the microfilm database at Harvard Business School's Baker Library – the primary source for SEC reports used in constructing our database – or, alternatively, in Thomson Financial. Thomson Financial was used, as it would on occasion (albeit rarely) have SEC filings not available on microfilm at the Baker Library. The vast majority of firms on our initial list had, in fact, permco numbers and had filed a 10-K or proxy statement during the 1978-1989 period. There were, in total, 1,079 firms in our 1978 panel set.

Given the rate of drop-outs, due to factors such as acquisition, bankruptcy and going-private activity, we updated our database at two five-year intervals: 1983 and 1988. The year 1983 is interesting as it is around the start of a huge boom in acquisition activity in the 1983-1987 period, while the year 1988 is interesting as it immediately presages the collapse of the takeover market, in particular the hostile takeover market, in the late 1980s. The 1983 panel set consisted of all firms that appear on the 1983 Fortune 500 list (the Fortune 1,000 list was not published in 1983); all firms in the S&P 500 as of January 1, 1983; and all firms with more than one billion dollars in sales in 1982 as reported in Compustat if, as with the 1978 panel set, (1) the firm was also tracked in the CRSP/Compustat merged database for 1983; and (2) had filed a 10-K or proxy statement in the 1983-1989 period. Again, the vast majority of firms meet these two conditions. There were 152 firms in our 1983 panel set that were not already being tracked in the 1978 panel set. Finally, we created a 1988 panel set consisting of all firms on the 1988 Fortune 500 list (as with 1983, the Fortune 1,000 was not published in 1988); all firms in the S&P 500 as of January 1, 1988; and all firms with more than one billion dollars in sales in 1987 as reported in Compustat if the same two conditions – inclusion in CRSP/Compustat and SEC filing – were satisfied. There were 252 firms in our 1988 database not already being tracking in either the 1978 or 1983 panel set.

For each one of the firms in our three panel sets, we tracked for every year during the relevant time period (period 1978-1989 inclusive for the 1978 panel set; 1983-1989 inclusive for the 1983 panel set; and 1988-1989 inclusive for the 1988 panel set), the corporate governance variables, state corporate laws and opt-ins/opt-outs referred to earlier. Coverage of a firm ceased if the firm was acquired by another firm or ceased filing 10-K and proxy statements. However, if a firm was the acquirer, the firm remained in our database post-acquisition. This treatment is consistent with the Compustat protocol on when firms are still tracked under their original firm identifier post-acquisition. The year 1989 was chosen as the last year for all three of our panels given that the IRRC database begins in 1990.

5. Data Collection for the Firm-Level Corporate Governance Variables

In order to code for firms' firm-level corporate governance variables, we first pulled every 10-K, 10-Q, and proxy statement for every firm in one of our three panels for every year starting with the year that the firm was added to the database (either 1978, 1983 or 1988). More specifically, information on cumulative voting, poison pills, confidential (secret) voting, unequal voting, dual-class shares, classified boards, blank check preferred, state of incorporation and compensation plans was gathered from a firm's 10-K and 10-Q reports for every year the firm was in the database (in contrast to the IRRC which did not update firm-level corporate governance provisions each year, but every two or three years). A number of the IRRC's compensation variables – pension parachutes; golden parachutes; silver parachutes; compensation plans; severance agreements; and indemnification contracts – were coded based on the various contracts and documents attached as exhibits to the firm's 10-K and 10-Q, such as employment contracts, stock option plans and pension agreements.

A number of firm-level corporate governance variables were coded based on an analysis of firms' charters and bylaws. To this end, we gathered approximately a quarter of a million pages of charters, bylaws and amendments thereto. Firms' charters and bylaws were obtained from three sources: (a) attachments to the firm's 10-K which often included the firm's charter, bylaws and amendments thereto; (b) attachments to the firm's 10-Q which occasionally included the firm's charter, bylaws and amendments thereto; and (c) the Delaware Division of Corporations, which very generously provided all the charters and charter amendments for all the Delaware firms – 415 firms in total – in our 1978 panel for the entire 1978-1989 period.

Based on an analysis of these charters and bylaws, information on a number of variables was obtained. These bylaw- or charter-based variables included classified boards (for which information was also gathered directly from the 10-K); fair price provisions; director indemnification provisions; limits on the ability of shareholders to amend the corporate charters; limits on the ability of shareholders to amend the corporate bylaws; supermajority voting requirements for mergers; anti-greenmail provisions; director liability provisions; limits on the ability of shareholders to call special meetings; and limits on the ability of shareholders to act by written consent.

For two of these variables (special meeting and written consent), we coded whether the firm's bylaws or charter were silent on the ability of shareholders to engage in the activity or whether it affirmatively stated there was no limitation on shareholders ability to engage in these activities. If the bylaw and charter were silent on the issue, whether shareholders could engage in the activity turns on the state of incorporation's default rules. Where a particular provision, such as for example a classified board or supermajority voting requirement for mergers, appears in the

corporate charter or a bylaw was also coded. The reason why this distinction can be important is due to the fact that it is often the case that it is relatively easy for shareholders to change the corporate bylaws, assuming there is no limitation on the ability of shareholders to amend the corporate bylaws, while it can be difficult if not impossible for shareholders to unilaterally change the corporate charter (Coates 2001). In the IRRC, the distinction between appearing in the corporate charter or bylaw is not taken into account.

6. Quality Controls

In addition to the primary sources of information on firms' corporate governance arrangements we performed a number of quality controls to ensure the accuracy and completeness of our dataset. First, the 1990 IRRC volume occasionally contained information on when a firm-level provision was adopted prior to 1990. Each one of these entries was double-checked against the coding in our database.

Second, IRRC published corporate governance volumes in 1984, 1985 and 1986, which covered whether some firms had certain corporate governance provisions. These volumes mostly covered firms that were in the S&P 500 and therefore covered far fewer firms than the 1990 IRRC volume. These pre-1990 volumes also tracked only a modest subset of the twenty-three IRRC firm-level variables with the variables tracked and the firms covered varying from volume to volume. Again, every entry in these IRRC volumes was compared with our coding of the primary data.

Third, all the corporate governances reported in the annual 10-K reports – cumulative voting; poison pill; confidential (secret) voting; unequal voting; dual-class shares; classified board; and compensation plans – were checked against the firm's 10-K a second time for every firm.

Fourth, several studies contained information on dual-class companies against which we checked our coding for dual-shares. The G-Index database of dual-class shares companies for the 1994-2005 period was used to ensure that any firms in that database coded as having dual-class shares that also appear in our database are also coded as having dual-class shares unless they adopted dual-class shares after 1989. In addition, the Lease, McConnell & Mikkelson (1983); Deanglo & Deanglo (1985) and Jarrell & Paulson (1988) studies contain lists of dual-class companies for their firm samples against which we checked our database.

Fifth, several studies compiled data on corporate governance provisions in addition to dual-class provisions, for samples of firms overlapping with our database. These studies are Lambert & Larcker (1985), which contains a list of 90 firms with golden parachutes for 1975-

1982, and Jarrell & Paulson (1987), which lists firms with various antitakeover protections. Our database was double-checked against these studies.

Sixth, *Corporate Control Alert*, a monthly publication that started in 1983, compiled comprehensive listings periodically during our time period of all firms that had adopted poison pills and the date of adoption. We used this publication to double-check all the poison pill codings in our database.

7. Missing Data

Despite our efforts, there remained some firms for some years, especially for the years 1978-1980, for which we were unable to collect information for the fully complement of G-Index provisions. For purposes of our empirical analysis, unless otherwise specifically noted, only firms were used if in a given year they had no more than seven missing G-Index provisions. This leaves us with approximately 1,000 unique firms in our database in the 1978-1989 period.

Table II documents the number of firms for each year during the 1978-1989 period for which we collected corporate governance data; the number of firms for which the number of missing G-Index variables was no more than eleven; no more than seven; and no more than three. Also, given our use of the no more seven missing G-Index provisions cut-off, Table II also reports the median number of missing provisions for this group. The median number of missing provisions for this group was 6 in 1978 and zero thereafter. Moreover, starting in 1981 over 80% of firms have no missing G-Index provisions at all in the sample we primarily used for our analysis. At the same time, before 1981, the sample as used still includes many firms with several missing provisions.

In order to better understand what observations are excluded because of our cut-off, we ran logit regressions to estimate the likelihood of the firm-year being excluded from our sample because of too many missing G-Index provisions. As independent variables, we include the G-Index, Q (firm value), all controls used in the Q regressions (see section III), year fixed effects, and with and without industry fixed effects. Clustering standard errors by firm, we robustly find that the most important characteristics associated with having more than seven missing provisions are a lower G-Index score, smaller book value of assets, higher leverage, no or missing R&D expenses and fewer capital expenditures. However, neither Q nor ROA are associated with dropping out of the sample, with their t-statistics (far) below 1.[7] This gives us some confidence that the results are not being driven by the exclusion of these firm-years.

[7] These results are not reported to save space, but are available upon request. In addition, some results are even stronger when being less restrictive or allowing more missing provisions when leaving firms in the sample, e.g. the coefficient and its significance of the G-Index in the Q-regressions in section IV.

Further, as a robustness test we reran the regressions we present in this paper so as to include a variable indicating how many provisions were missing. This variable was always statistically insignificant. We also ran regressions, which we will present, using a different cut-off than no more than 7 missing provisions. Finally, we also make sure all results are robust to excluding the pre-1981 data altogether, which is in fact the case.

III. GOVERNANCE AND FIRM VALUATION

We begin our analysis with the central issue of whether firm valuation is affected by a firm's corporate governance arrangements (as proxied by the G-Index and E-Index). This is an issue that we will also explore not only here, but in Part IV as well. Gompers, Ishii and Metrick (2003) document a strong cross-sectional association between corporate governance, proxied by their G-Index, and firm value. They find that higher G-Index scores (i.e., more anti-takeover provisions) are associated with lower Tobin's Qs. They propose different explanations for this, including investors learning about the importance of good governance over their 1990-1999 time period and thereby increasing firm values for well-governed firms. Bebchuk, Cohen and Ferrell (2009) also document a strong cross-sectional association between corporate governance, proxied by their E-Index, and lower firm value.

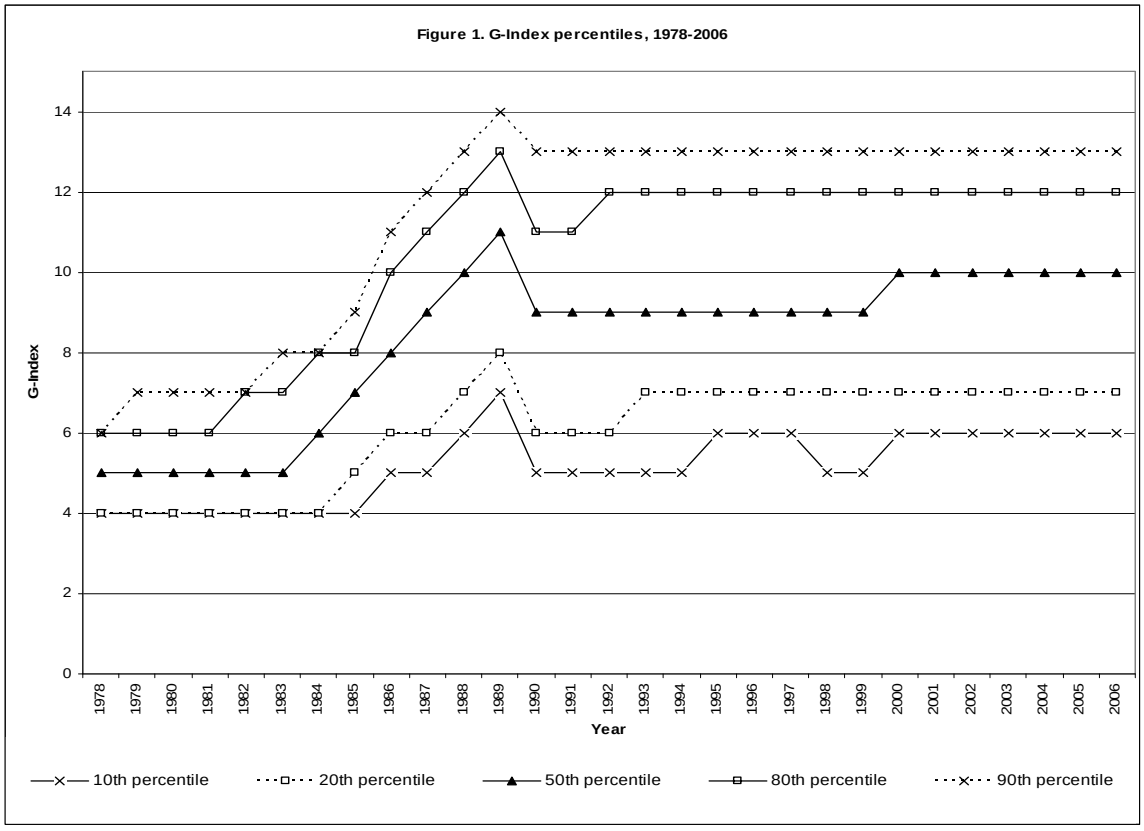
The significant variation of governance provisions within firms across time in our sample allows for an out-of-sample re-examination of this association between governance and firm value. In particular, the inclusion of firm fixed effects in pooled panel regressions mitigates the endogeneity of firms adopting governance provisions depending on their circumstances. Using both firm and year fixed effects, we document a robust negative association between the G-Index and Tobin's Q for 1978-2006. This is our first primary finding. However, the negative association of the G-Index with firm valuation does not survive the introduction of firm fixed effects for 1990-2006 or other sub-periods.

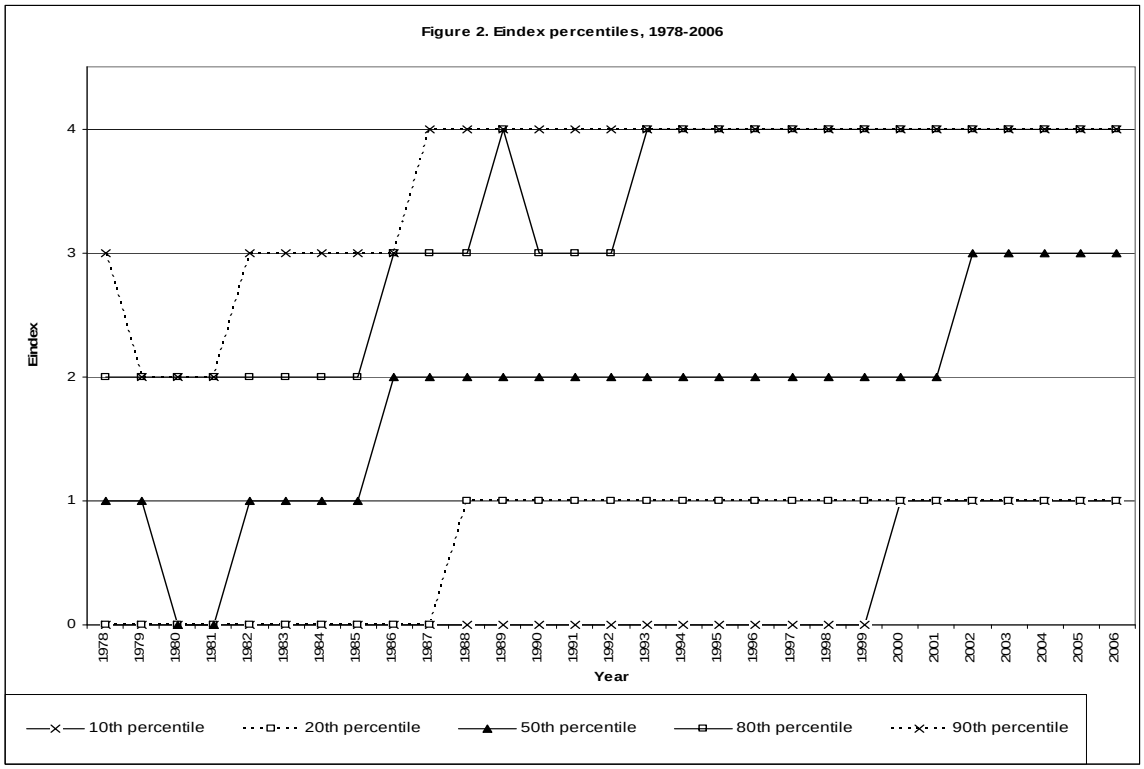
We begin our exploration of the firm valuation effects of governance by first documenting in Section 1 the significant changes in firms' G- and E-Index scores during the 1978-1989 period and the relative stability thereafter, variation which we will exploit in our regressions. Section 2 will then present our Q regressions. Finally, Section 3 will document that the association we find between poor corporate governance and lower firm valuation is not explained by "reverse causation," i.e. whether low valued firms tended to adopt poor corporate governance.

1. The Changing Corporate Governance Landscape in the 1980s

The 1980s saw dramatic changes in firms' corporate governance arrangements with far more stability in those arrangements prevailing during the 1990s. As a result, it is imperative to have corporate governance data for a large sample of firms over the 1980s in order to investigate why firms have the corporate governance arrangements they currently do and the effects of variation in corporate governance arrangements over time rather than just in the cross-section. Both inquiries are useful in helping to identify whether any association between firm valuation and governance is causal in nature.

Figure 1 tracks the evolution of the G-Index of all the firms in our sample (with fewer than 8 missing provisions) over the 1978-2006 time period. We plot the 10%, 20%, 50%, 80% and 90% percentiles in each year. As Figure 1 illustrates, the distribution of the G-Index significantly shifted upward across all the percentiles over this time period. The median G-Index score equals 5 from 1978-1983, then increases by exactly one point a year from 1983-1989 to reach 11 in 1989, shifts to 9 in 1990 and remains almost constant thereafter. Firms likewise also experienced substantial increases in the E-Index scores during the 1980s. Changes in firms' E-Index scores, again broken down by their percentile rankings, is graphed in Figure 2. As is also evident from Figure 2, the variation between firms in their E-Index scores, particularly in the first half of the 1980s, was lower than that for firms' G-Index score.





Not surprisingly, this significant time variation also appears when one examines the incidence of individual provisions during the 1978-1989 period. Moreover, there is significant variation across individual corporate provisions in terms of their incidence in any given year in the 1978-1989 period.

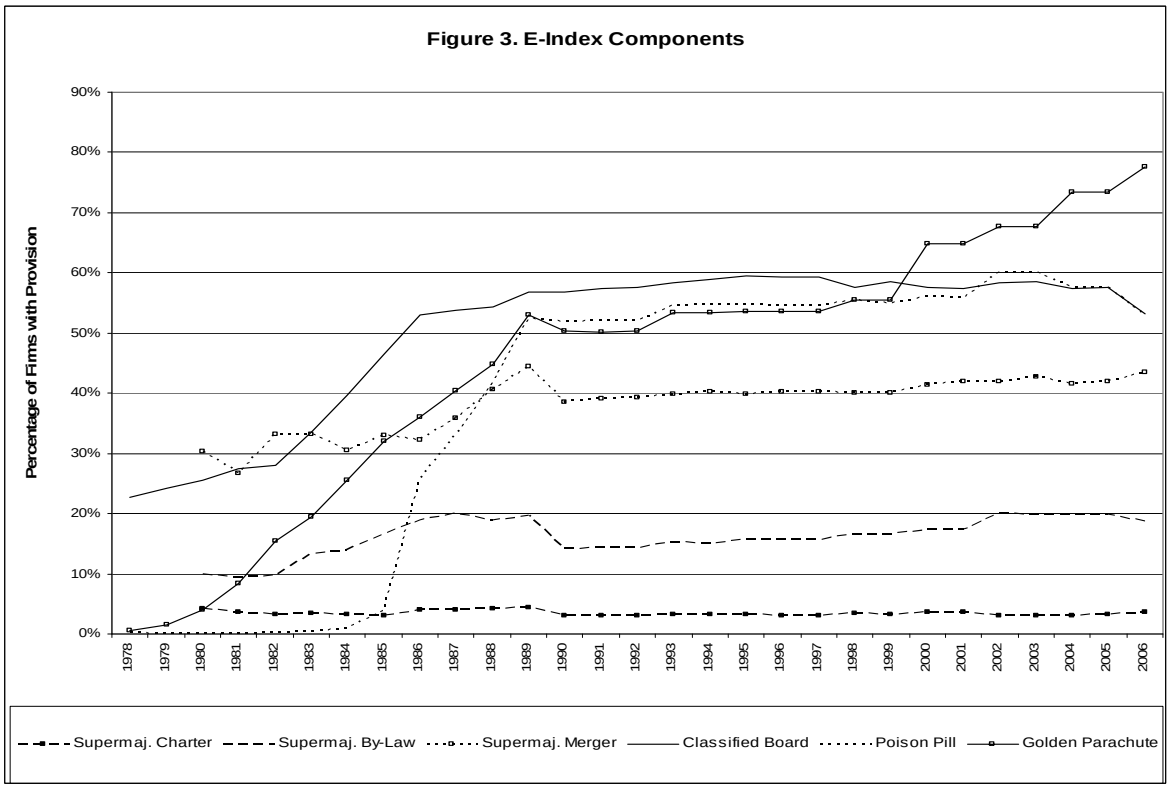


Figure 3 graphs the incidence in our sample of the six provisions which constitute the E-Index: supermajority voting requirements for charters, by-laws and mergers, classified boards, poison pills and golden parachutes.[8]

Of the six E-Index provisions, four of them enjoyed very substantial increases in their incidence in the 1980s (supermajority merger, classified board, poison pill and golden parachute), one enjoying a fairly modest increase (supermajority by-law), and one with effectively no growth (supermajority charter). Moreover, the timing of these increases differed, with classified boards enjoying a steady increase for most of the 1980s while poison pills experienced dramatic growth in the mid-1980s. In contrast, there is very little in the way of time variation, at least at the aggregate level, over the 1990s in the incidence of these variables.

2. Governance and Firm Valuation

Panel A of Table III presents annual cross-sectional regressions of firms' year-end industry-adjusted Tobin's Q on the G-Index over the 1978-2006 time period for a total of twenty-nine regressions. For each of these annual regressions the coefficient value on the G-Index was consistently negative, except for one year (1981, though the point estimate is not statistically significant) with an average coefficient of -1.71%. As for the E-Index, all twenty-nine annual cross-sectional regressions of firms' industry-adjusted Tobin's Q on the E-index covering the 1978-2006 time period are negative as well, with an average coefficient value of -4.50% (results not reported to save space).

Panel B of Table III contains pooled regressions of industry adjusted Tobin's Q on the G-Index, along with a number of other controls, including year fixed effects throughout, robust standard errors clustered by firm, and either industry or firm-fixed effects in some regressions. A higher G-Index is again associated with lower firm valuation with the coefficient estimate (-0.020) being negative and statistically significant at the 1% level for 1978-2006. This basic finding of a negative and statistically significant relationship between a firm's G-Index and a firm's industry-adjusted Tobin's Q survives the introduction of industry fixed effects (coefficient value -0.018 and 1% statistical significance) and firm fixed effects (coefficient value of -0.011 with p value of 6%). Perhaps not unsurprisingly given the data demands of these regressions, when one looks at sub-periods (1978-1989 and 1990-2006) the coefficient value on the G-Index with firm fixed effects is not statistically significant, although the negative coefficient estimate for the G-Index of -0.016 for 1990-2006 is suggestive with a t-statistic of 1.61 with a corresponding p-value of 11%.

[8] Some series start in 1980 due to too many missing observations for 1978 and 1979.

Panel C of Table III presents the results of various robustness checks for our primary finding of a negative association between firm value and poor governance over the 1978-2006 time period. As before, we use industry-adjusted Tobin's Q, year fixed effects throughout, the Panel B controls and, in some regressions, either industry or firm fixed effects. Columns (1) – (3) document that using different cut-offs in terms of the acceptable number of missing G-Index variables (cut-off of no more that 5 missing; no more than 11 missing; no more than 15 missing) changes neither the point estimates of the firm valuation effects of governance nor their statistical significance. This is not surprising given the annual cross-section regression results in Panel A which document a negative association between firm value and governance for every year between 1982-1989, years for which there were very few missing variables (see Table II).

Panel C also examines of the effect of the E-Index on firm valuation during this period documenting a strong negative association (-0.05 with 1% statistical significance) for the 1978-2006 period, a finding that does not however survive the introduction of firm fixed effects. This latter finding is not surprising either given Figure 2, which documents the lack of a spread in the E-Index for much of the 1978-1989 period. In contrast, Bebchuk, Cohen, and Ferrell (2009) document a robust association between the E-Index and firm valuation during the 1990-2006 period for which there was a meaningful spread among firms in terms of their E-Index scores.

Panel C also presents the results when we use our G-Subgroup Index, which is based on eighteen of the twenty-four G-Index provisions, rather than the full G-Index. The negative association between governance and firm valuation remains statistically significant (with the same point estimate as that of the full G-Index) even with firm fixed effects. Finally Panel C presents the results, again with firm fixed effects, when the G-Index Uncorrected is used. And, again, there is a negative association with a -0.01 coefficient, albeit with a p-value of only 12%. This suggests the importance of correctly incorporating the state defaults.

3. The Effect of Firm Valuation on Firms' Corporate Governance Choices

A common "reverse causation" story in the corporate governance literature is the possibility that a firm with lower firm valuation will tend to adopt more G-Index provisions in order to insulate the firm from hostile takeovers (see e.g. Lehn, Patro & Zhao 2006). As a result, the documented correlation between low firm valuation and the G-Index index, according to this story, might be at least in part due to reverse causation.[9]

[9] However, the cause for why firms can maintain their low firm valuation after insulating themselves from hostile takeovers might be the corporate governance provisions that provide such insulation. In other words, the ability to maintain a low firm valuation might be caused by the corporate governance provisions.

With this "reverse causation" story in mind, we examine whether a firm's valuation, as measured by that firm's Tobin's Q, helps explain a firm's G-Index score. In our regressions we control for a number of other variables including, importantly, firm fixed effects. All the independent variables, including the firm's Tobin's Q, are lagged by one year to the firm's G-Index score (the dependent variable). All our regressions cluster standard errors at the firm-level. The results of this analysis are contained in Table IV.

Interestingly, the coefficient on Tobin's Q is actually positively and significantly associated with having an increased G-Index index for both the entire 1978-2006 period (coefficient of 0.29) as well as the 1978-1989 period separately (1.23) when year fixed effects were not controlled for. However, when year fixed effects are added, this statistically significant positive association disappears for both the entire 1978-2006 period (coefficient of -0.07, 1% statistical significance) and the 1978-1989 period considered separately (0.05, no statistical significance even at the 10% level). This substantial change in the regression results of adding year fixed effects indicates that firms tended to increase their G-Index scores in years in which firm valuations were generally rising, with the result that the positive association between firms' valuation and changes in firms' G-Index scores either disappears (1978-1990 time period) or actually reverses (1978-2006 time period). As for the 1990-2006 time period, there is a negative association that is very minor economically between Tobin's Q and a firm's G-Index score controlling for both year and fixed effects (-.05, 1% statistical significance). Finally, when one looks at the relationship between a firm's return on assets (ROA), while controlling for a firm's Tobin's Q, there is no statistical significant association with changes in a firm's G-Index for any of the time periods (1978-2006; 1978-1989; and 1990-2006) when year fixed effects are included.

In short, for the period in which firms' corporate governance arrangements were changing most rapidly (the 1978-1989 period), there was no identifiable effect of firm valuation on firms' corporate governance choices, though the effect of a low firm valuation on a firm's corporate governance choices predicted by the "reverse causation" story does hold true to some extent during the 1990-2006 time period. However, the association seems quite minor economically, which a one standard deviation decrease in Tobin's Q being associated with an increase in the G-Index score of 0.05 x 0.8 = 0.04.

IV. GOVERNANCE AND THE TAKEOVER CHANNEL

An important issue in exploring the relationship between governance and firm valuation

is the potential channels by which governance can affect firm valuation. Identification of such channels is of interest in its own right as well potentially providing evidence that governance does in fact affect firm valuation.

We begin our exploration of this issue by first documenting in Section 1 the incidence and composition of takeover activity in the 1980s and thereafter. We then examine in Section 2 the change in the effect of governance on firm valuation that resulted from a dramatic increase in the potency of poison pills and classified boards as a takeover defense due to a seminal 1985 decision by the Delaware Supreme Court. In Section 3 we then explore the effect of governance on firm valuation for firms who happened to be in industries experiencing "high" levels of M&A activity relative to firms in industries experiencing "low" M&A activity levels. Finally, in Section 3 we examine the effect of governance on operating performance (net profit margins and return on assets).

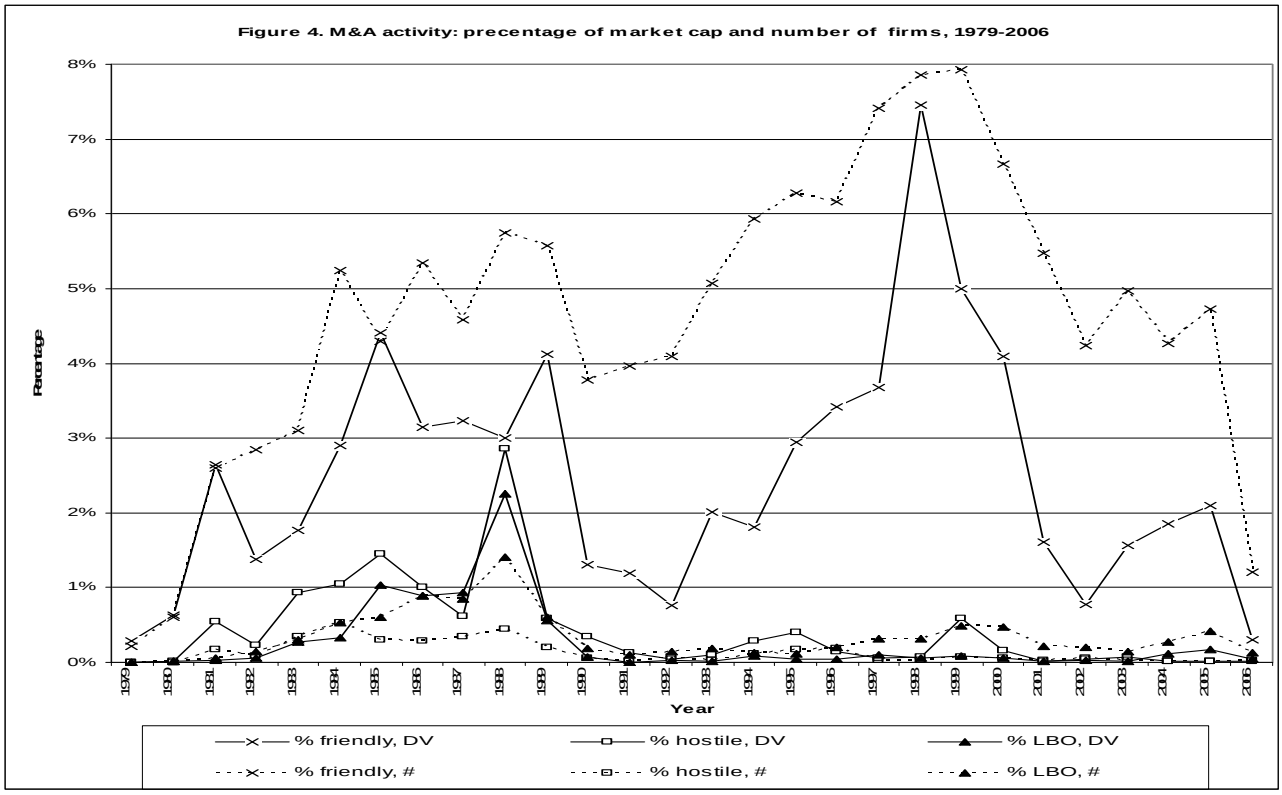
The results of these analyses suggest that association between governance and firm valuation arises primarily through a "takeover channel", through the probability of takeover and, hence, the probability of target shareholders receiving a takeover premium, rather than primarily through a firm's operating performance. In considering the plausibility of the "takeover channel" as an important channel for governance effects on firm valuation, it is worth bearing in mind the finding of Andrade, Mitchell and Stafford (2001) that the median bid premium is approximately 38%, suggesting that takeovers generally are very beneficial to the target shareholders.

1. M&A Activity in the 1980s and Thereafter

Not only was the 1980s a period of substantial change in firms' corporate governance arrangements, as documented by Figures 1-3, but it was also a period of substantial changes in M&A activity. Figure 4 displays the incidence of M&A activity broken down into three categories – friendly takeovers, hostile takeovers, and leveraged buyouts (LBOs) – over the 1979-2006 time period for all the companies in our sample.

For each of our three categories of M&A activity we graph in Figure 4 their incidence as measured by (i) the aggregate dollar value of M&A activity in any given category and year, divided by the total market capitalization of all firms in our sample as of the beginning of the year (represented by the solid "DV" lines, henceforth the aggregate percentage of firm capitalization undergoing M&A); and (ii) the aggregate number of firms subject to M&A activity in a given year, divided by the total number of firms in our sample (represented by the dotted "#" lines, henceforth the aggregate proportion of firms undergoing M&A).

As is apparent from Figure 4, M&A activity, while starting at a very low base at the beginning of this period, occurred on an extensive scale both during the 1980s and the 1990s. The dramatic uptick in M&A activity of all kinds began around 1982. As is also obvious from Figure 4, the composition of M&A activity was substantially different in the 1980s relative to the 1990s, particularly in the incidence of hostile and LBO M&A activity. This is a fact that is well-recognized in the literature (see e.g. Andrade, Mitchell and Stafford 2001).



2. Governance and the Changing Law of Takeover Defenses

The law surrounding the use of takeover defenses was also in considerable flux in the 1980s. As was seen in Figure 3, poison pills were first deployed in 1982 and were adopted by a few firms in 1983 and 1984. From 1985 to 1986 the rate of adoption increased dramatically, from 4% of all firms in the sample as of 1985 to 26% of all firms as of 1986. And every year thereafter that percentage steadily increased so that, by 1989, 52% of all firms in our sample had a poison pill.

The year of the dramatic increase in the incidence of poison pills, 1985, was the same year as the seminal case of *Moran v. Household International*,[11] which judicially validated the poison pill for the first time. The Delaware Supreme Court held that the decision of the Household Corporation to adopt a poison pill was within the legal authority vested in the firm's

[11] 500 A.2d 1346 (Del. 1985).

board of directors and that the adoption of the pill was subject to the most relaxed form of judicial review, the business judgment rule.

This was far from a pre-ordained result. The decision resolved significant legal uncertainty that existed till that point concerning the legality of poison pills. The prominent corporate lawyer and creator of the poison pill, Martin Lipton, explained that of all the Delaware decisions on the use of defensive tactics at the time "the one that proved to have the greatest practical impact was undoubtedly *Household* – the pill changed everything" (Lipton and Rowe 2002). He went on to explain that, "*Household* recognized that the pill gave boards the power to 'just say no' until such time as the shareholders replaced the incumbent directors, if they so wished." Or as a contemporary commentator put it, "This is probably the single most important corporate law case to come before the courts in years" (Stevenson (1985, p.58) quoting a prominent corporate lawyer))." A Business Week article at the time explained that the "*Household* case in Delaware is the crucial one."

Numerous commentators pre-*Household* commented on the significant legal uncertainty surrounding the use of the poison pill. As one article at the time explained, some corporate lawyers were "skeptical about poison pill plans, and questioned whether the plans will withstand legal scrutiny" (Masters (1983), p.9). Much of the legal uncertainty in the *Household* case concerned whether the issuance of a poison pill was within the power vested in the board of directors under Delaware's General Corporation Law statute and whether the use of a poison pill to block an unwanted acquisition would violate a target board's common law fiduciary obligations to its shareholders. Numerous commentators made arguments pre-*Household* questioning the validity of the poison pill (see, e.g., Lynch & Steinberg (1979); Easterbrook & Fischel (1981); Gilson (1981)). The Securities and Exchange Commission filed an amicus brief in the *Household* case arguing that the Household Corporation's adoption of a poison pill violated the basic rights of shareholders under Delaware corporate law to decide for themselves the merits of a hostile tender offer. The Securities and Exchange Commission also argued that the poison pill would fatally undermine the ability of shareholders to conduct a proxy contest and should be deemed illegal for this reason as well. These arguments, while prominent prior to *Household*, were rejected by the court in its *Household* decision.

The judicial validation of the poison pill in *Household* also had the effect of substantially increasing the antitakeover effect of a classified board, given that control of the target board was now necessary in a situation where a firm had decided to adopt a poison pill. This marked a substantial shift in the effect of classified boards prior to *Household*, as the presence of a classified board without the ability of the firm to use a poison pill posed little if anything in the way of a barrier to a bidder who wished to acquire a control block (Gilson (1981); Bebchuk, Coates and Subramanian (2002)). In the absence of a pill, bidders could still acquire a control block against the wishes of target board, and once that had occurred it was quite unlikely (as a practical matter) for a target board to oppose the wishes of a controlling shareholder (Gilson (1981)). Pre-*Household* classified boards, however, would still potentially have the beneficial effects of increasing board stability and board independence, common justifications for having a classified board other than their antitakeover effect.

In short, the year 1985 marked a critical turning point in the ability of firms to use poison pills (as well as poison pills combined with classified boards) to block unwanted third party acquisitions. As this judicial decision resolved a major source of legal uncertainty surrounding the use of antitakeover tactics, this event is another useful way to address endogeneity concerns surrounding the negative association between firm value and antitakeover provisions.

Given our preceding discussion, the hypothesis we wish to test is that the G-Index, poison pills and classified boards have a more significant negative effect on firm valuation post-1985 relative to pre-1985. Our dependent variable is industry-adjusted Tobin's Q for the full 1978-2006 sample. We create a dummy variable for whether the year is prior to 1985 and another dummy variable for whether the year is equal to 1985 (with post-1985 being our baseline time period) and then interact these dummy variables with the G-Index, classified board and poison pill variables. We employ the same controls as in Table III and also control throughout for year fixed effects, plus either industry or firm fixed effects. Robust standard errors are clustered by firm. The results of our analysis are reported in Table V.

As the interaction results for the G-Index x Pre-1985 dummy variable documented in columns (1)-(3) show, the G-Index did indeed have a more negative impact in the post-1985 period versus pre-1985, with the interaction effect having a p-value of 7% in columns (1) and (2). The G-Index standing alone is also statistically significant negative at a level of 5% even in the fixed effects regression (column (3)). This means that before 1985, the coefficient of the G-Index is not significantly associated with firm value, either economically or statistically. After 1985, an increase in the G-Index of one point is associated with a lower firm value of 2.0% with industry fixed effects, or of 1.2% with firm fixed effects.

Turning to the individual corporate governance provisions, we find that classified boards only had negative association with firm valuation post-1985, but not in the pre-1985 period (with the difference being statistically significance at 1%). Economically, firms with a classified board have an 8.1% lower firm value after 1985, but about 4% higher firm value before 1985. Poison pills are also only strongly negatively associated with firm valuation after 1985, with a large economic effect, as firms with a poison pill have an 11.7% lower firm value after 1985. While the interaction effect is not quite statistically significant at the 10% level, the association of a poison pill and firm value is positive before 1985. However, both the classified board and poison pill results are only significant with industry fixed effects, but disappear (with no more significance) once firm fixed effects are added (these results are not reported to save space).

3. Governance and Levels of M&A Activity

If the G-Index is negatively associated with firm value by reducing the likelihood of an attractive takeover, then the negative effects of a higher G-Index should be particularly powerful when a firm happens to be in an industry experiencing "high" levels of takeover activity, relative to firms in the same industry with lower G-Index scores and relative to firms with the same G-index score but in an industry that year that was experiencing "low" levels of takeover activity. Being a firm in an industry with "high" levels of takeover activity renders the possibility of a takeover offer particularly relevant to firm valuation given the increased likelihood, all else being equal, of receiving a takeover bid. This is the hypothesis we will test in this section.

As takeover bids tend to cluster in industries, we conjecture that past industry-specific takeover activity is a good instrument for the channel through which governance affects firm value. Our hypothesis exploits the fact that the level of M&A activity in an industry in a given year can help identify whether the G-Index causes lower firm valuation. In particular, Mitchell and Mulherin (1996) report that mergers occur in waves; and within a wave, mergers strongly cluster by industry. In unreported regressions, we in fact find a strong link between past and future friendly takeover activity, both at the aggregate and industry levels. The literature (see e.g. Andrade, Mitchell and Mulherin 2001) has interpreted these findings as suggesting that mergers might be reactions to unexpected shocks to industry structure, regulation or technological innovation, such that industry-specific waves could be considered as exogenous to the firm (and not proxying for some other endogenous choice by the firm, if these merger waves are indeed driven by unexpected industry shocks). In other words, to the extent that industry M&A merger waves are exogenous, this can help both identify whether the G-Index could cause lower firm valuation and whether that lower firm valuation comes about through the takeover channel.

Our hypothesis implies that the interaction between the G-Index and being in an industry in a given year with a "high" level of friendly activity should have a negative coefficient, given that antitakeover provisions are expected to be more harmful if M&A activity is more likely. In order to test our hypothesis, we create two dummy variables. One dummy variable indicates whether a firm in a given year is in an industry (using the 48 Fama-French industry groups) experiencing a "high" level of friendly takeover activity, and analogously we construct a dummy for "low" levels of friendly activity. "High" and "low" levels of activity are determined by whether the industry was in the top quartile or the bottom quartile in terms of friendly M&A activity in that year, as measured by the proportion of Compustat firms in the industry taken over. We interact these dummy variables with the G-Index in pooled panel regressions with industry-adjusted Tobin's Q as the dependent variable. In our regressions, we use the same set of controls as used in Table III and include year fixed effects plus industry or firm fixed effects.[14] We begin our analysis with the year 1982 as prior to that there is virtually no spread in takeover activity between "high" and "low" takeover industries.

The results of our analysis can be found in Panel A of Table VI for the 1982 – 2006 time period, plus the 1982-1990 and 1991-2006 sub-periods. Turning first to the entire 1982-2006 period, the coefficient value on G-Index interaction with being a firm in an industry with a "high" level of friendly takeover activity is statistically significant (coefficient of -0.004 with a p-value of 3%), and remains significant (coefficient of -0.002 with a p-value of 7%) with the introduction of firm fixed effects. The G-Index standing by itself still has a statistically significant at the 1% level negative effect on firm valuation with industry fixed effects (coefficient of -0.019) and remains statistically significant negative even with the introduction of firm fixed effects (coefficient of -0.011 with a p-value of 7%). The G-Index interaction with firms in industries with "low" levels of takeover activity has a positive and significant coefficient, even with firm fixed effects (coefficient of 0.003 with a p-value of 0.5%).

For the 1982-1990 period, the coefficient value on the interaction term of being a firm in an industry experiencing "high" levels of M&A activity and the G-Index is statistically significant and negative even controlling for firm fixed effects (coefficient of -0.004 and p-value of 4%). With the introduction of this interaction term and controlling for firm fixed effects (column 4), the G-Index by itself does not have any statistically significant association with firm valuation. Finally, focusing on the 1991-2006 period, the interaction term for "high" levels of

[14] We have also tried adding interactions with dummies indicating whether the friendly M&A activity in the year was relatively high (itself partly forward-looking or ex-post), but found no significant differences in the importance of the G-Index (results not reported).

takeover activity and the G-Index is statistically significant at the 1% level (-0.005) without firm fixed effects, but is no longer statistically significantly negative with firm fixed effects.

In short, we find that a firm in an industry with "high" levels of M&A activity has a more pronounced negative association of the G-Index with firm valuation. These results survive the introduction of firm fixed effects and seem economically meaningful. For example, using the full time period and firm fixed effects specification in column 2, a one point increase in the G-Index is associated with a decrease in firm value of 0.8% for firms in an industry with a low level of M&A activity, and a decrease in firm value of 1.3% for firms in an industry with a high level of M&A activity.

4. Governance and Operating Performance

Another plausible alternative channel besides the takeover channel through which governance could affect firm valuation is the firm's operating performance. To explore this possibility, we use as dependent variables firms' industry-adjusted return on assets (ROA) and industry-adjusted net profit margins (NPM) as dependent variables rather than Tobin's Q. The G-Index is the main independent variable of interest (along with the usual controls, using year dummies throughout and, in some regressions, either firm or industry fixed effects). These results are reported in Panel B of Table VI.

The results are not clear-cut. While the coefficient value on the G-Index is negative for the entire 1978-2006 both when ROA is the dependent variable (-0.03) and when NPM is the dependent variable (-0.1) neither is statistical significant even at the 10% level. Therefore, Gompers, Ishii and Metrick (2003)'s finding of negative cross-sectional associations between the G-Index and accounting profitability does not seem robust to extending the time period. Therefore, the primary channel by which governance affects firm valuation does not appear to be through its effects on operating performance, at least over the 1978-2006 period considered as a whole.

V. Governance and Stock Returns

1. Abnormal Returns of Hedge Portfolios Based on Low-High G-Index Stocks

One of the most intriguing findings in Gompers, Ishii, and Metrick (2003) is that stocks with low G-Index scores vastly outperform stocks with high G-Index scores in their time period of 1990-1999. Subsequent papers exploring these return findings are, for example, Cremers & Nair (2005), Bebchuk, Cohen & Ferrell (2009), Cremers, Nair & John (2009), Johnson,

Moorman and Sorescu (2008), and Giroud & Mueller (2008). In this subsection, we investigate whether having "better" corporate governance (as proxied by a lower G-Index or E-Index) results in positive abnormal stock returns over the full time period or any sub-periods.

We weight our portfolios of "good" and "poor" corporate governance firms by firms' respective market capitalizations as well as use equally weighted portfolios. Next, we form 'hedge' portfolios by going long the portfolio with low G-Index (or E-Index) stocks and shorting the portfolio with high G-Index stocks, where low and high are defined using either the quintile or decile extreme portfolios. In all cases, we use only information that would have been publicly available at the annual portfolio formation dates. We report both annualized "excess returns" (over the risk-free rate) and annualized abnormal returns, i.e. alphas generated by the Fama-French-Carhart four-factor model that includes market, size, value and momentum factors.

Table VII reports the results for portfolios sorted on their G-Index score (using value-weighted portfolios in Panel A and equally-weighted portfolios in Panel B), for different time periods and for sorting stocks and forming hedge portfolio from quintile and decile groups. While Gompers, Ishii and Metrick (2003) employ fixed G-Index cut-off points in sorting stocks in different governance-related portfolios over their time period (1990-1999), we cannot do so due to the large time variation of G-Index over 1978-1989. However, after 1990 the top and bottom G-Index decile portfolios are very close to Gompers, Ishii and Metrick (2003)'s 'dictatorship' and 'democracy' portfolios, respectively.

For the full 1978-2007 time period we document, whether using value-weighted or equally-weighted portfolios, that there are positive, strongly statistically significant abnormal returns associated with going long the bottom G-Index decile of firms with "good" corporate governance and going short the top G-Index decile of firms (annualized alpha of 3.93% with a t-statistic of 2.43 using value-weighted portfolios; and an annualized alpha of 4.58% with a t-statistic of 3.88 using equally-weighted portfolios). For quintile portfolios and 1978-2006, the results are naturally weaker, and no longer statistically significant for value-weighted portfolios, though still economically and statistically significant for equally-weighted portfolios (annualized alpha of 3.26% per year with a t-statistic of 3.25).

Across periods, the equally-weighted long-short positions of higher-low G-Index stocks generate higher abnormal returns for the 1978-1990 period than for the 1990-2006. For example, the equally-weighted decile portfolios have an annualized alpha spread of 7.91% (t-statistic of 3.96) for 1978-1990 but only 1.54% (t-statistic of 1.10) for 1990-2006. For value-weighted portfolios, the annualized alpha is insignificant in both of the longer sub-periods, with the long-short decile spread equal to 2.87% (t-statistic of 1.23) for 1978-1990 and 3.43% (t-statistic of

1.66) for 1990-2007. However, as is well-known, we replicate the value-weighted annualized long-short alpha based on decile sorts of 8.46% (t-statistic of 2.81) for the Gompers, Ishii and Metrick (2003) time period of 1990-1999.

Table VIII provides the robustness check motivated by Johnson, Moorman, and Sorescu (2008), who argue that the Gompres, Ishii and Metrick (2003) return results for 1990-1999 are not robust to clustering of stocks with high and low G-Index scores across industries. Their main methodology involves forming matching portfolios based upon firms' three-digit SIC-codes. Specifically, for each stock in, say, the lowest G-Index decile portfolio, we create a value-weighted industry-matched portfolio containing only stocks for which we know the G-Index score but that are not included in the 'democracy' portfolio, and have the same three-digit SIC-codes as that particular firm. However, Lewellen and Metrick (2009) argue that industry-adjusting at the three-digit SIC level does not yield well-specified tests. Instead, they advocate the use of GICS industry classifications or the 48 Fama-French industry groups. As GICS industry classifications start in 1985 only and are thus not available for our full sample period, we also form matching portfolios based upon firms' 48 Fama-French industry group.[15] Specifically, for each stock in, say, the highest G-Index decile portfolio, we create a value-weighted industry-matched portfolio containing only stocks for which we know the G-Index score but that are not included in the 'dictatorship' portfolio, and are in the same 48 Fama-French industry group as that particular firm.

Next, we compute the stock's 'industry-adjusted' return by deducting the returns of these industry-matched portfolios from the firm's return. Finally, we calculate the industry-adjusted 'democracy' portfolio return by equally- or value-weighting the individual industry-adjusted returns of the stocks in the democracy portfolio. The industry-adjusted returns for the highest G-Index decile and lowest and highest quintile portfolios are constructed analogously. The table reports the industry-adjusted quintile and decile G-Index portfolio abnormal return results for the full time period of 1978-2007 as well as the various sub-periods. We only present four-factor alphas (no excess returns), for both value and equally-weighted portfolios. The results using industry-matched portfolios at the three-digit SIC level are given in Panel A, and using industry-matched portfolios at the 48 Fama-French industry group level in Panel B.

The main finding is that the equally-weighted alphas over the full time period are robust to industry-adjusting, i.e., the spread in abnormal returns of low and high G-Index portfolios remains both economically and statistically significant over 1978-2007, but the results for value-

[15] We thank Kenneth French for making these industry groups available on his website. Lewellen and Metrick (2009) find that using industry-matched portfolios matched for 48 Fama-French industry groups yield tests with greater power and size than those matched at the three-digit SIC level.

weighted portfolios are not robust. For example using equally-weighted portfolios and three-digit SIC level industry-matched portfolios, the long-short portfolio of buying (selling) stocks with lowest (highest) decile G-Index scores generates an industry-adjusted, annualized abnormal return equal to 3.32% (t-statistic of 2.57). However, the analogous value-weighted hedge portfolio's alpha is no longer significant (annualized alpha of 1.08% with a t-statistic of 0.57).

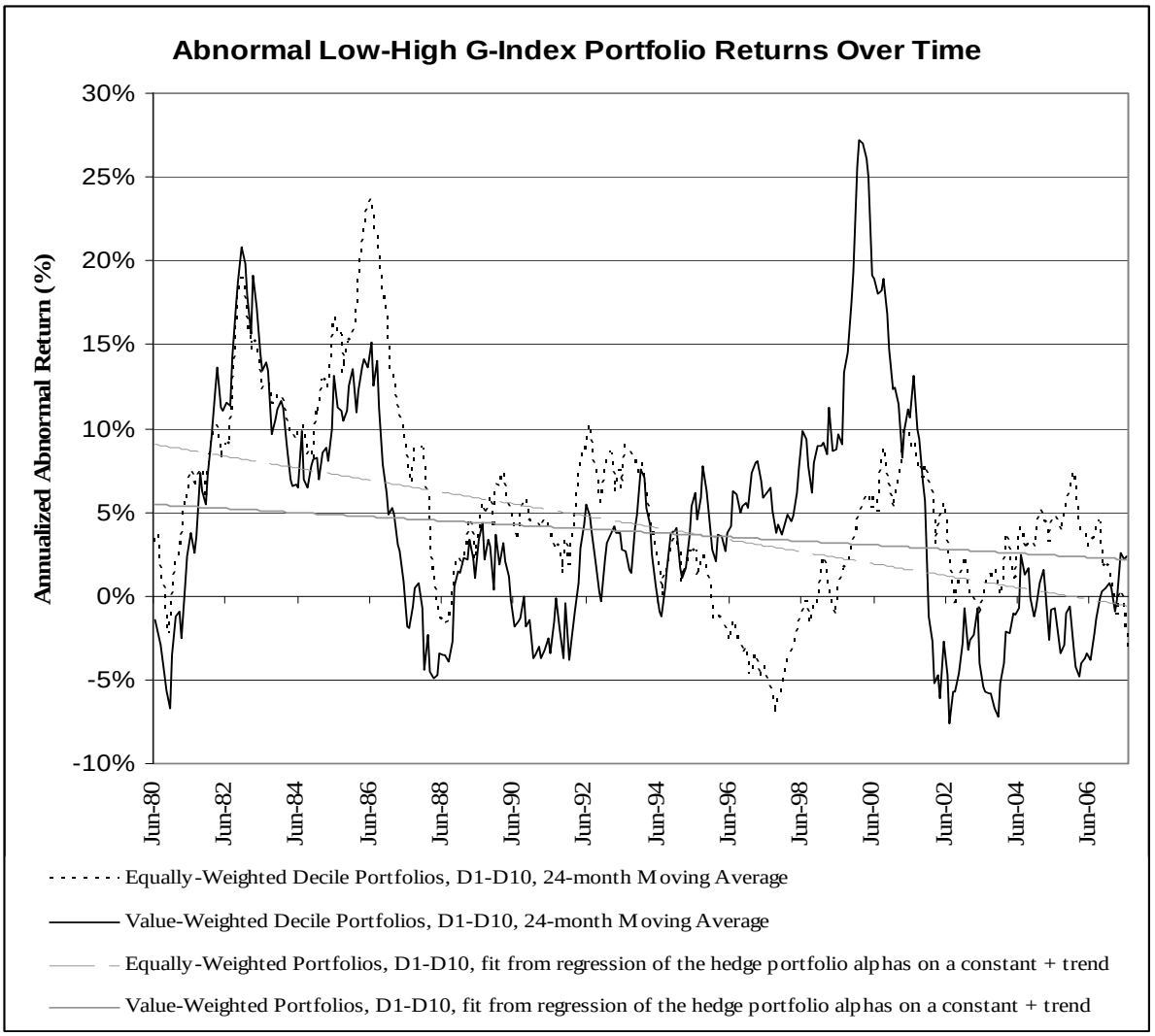
Furthermore, industry-adjusting only seems to affect the abnormal returns post-1990. For the equally-weighted hedge portfolios and the 1978-1990 sub-period and three-digit SIC level industry-matched portfolios, the industry-adjusted annualized alpha remains economically and statistically strong (4.38% with a t-statistic of 3.65 for quintile sorts and 7.19% with a t-statistic of 3.51 for decile sorts). However, all equally-weighted hedge portfolios for both the 1990-2007 and 1990-1999 sub-periods are insignificant. For the value-weighted portfolios, industry-adjusting is particularly dramatic for the 1990-1999 period, where we replicate the results in Johnson, Moorman, and Sorescu (2008). For the 1978-1990 period, value-weighted hedge portfolio alphas are insignificant with or without industry-adjusting. Finally, using industry-matched portfolios at the 48 Fama-French industry group level gives quite similar results to using industry-matched portfolios at the three-digit SIC level.[16]

Two interesting empirical regularities are suggested by the results of Tables VII and VIII: governance seems to matter most for smaller capitalization stocks and the overall association between abnormal returns and governance seems to decline over our time period, with an important exception. First, across the full time period 1978-2007 and the 1978-1990 sub-periods, the equally-weighted long-short positions of higher-low G-Index stocks generate higher abnormal returns than the value-weighted portfolios. Over the 1990 – 2007 sub-period, there are no statistically significant abnormal returns accruing to the governance hedge portfolios (neither using value nor equally-weighted portfolios, and neither for quintile nor decile sorts).

Second, the significance of the alphas of the governance hedge portfolios for 1978-1990 combined with the insignificant alphas for 1990-2007 suggests the decline of the importance of governance for abnormal returns over time. This is further illustrated in Figure 5, which plots the 24-month moving averages of the abnormal returns of hedge portfolios that buy stocks in the decile with the lowest G-Index and short stocks in the decile with the highest G-Index. We show

[16] Note that in Table VIII, as elsewhere, we use the 'UMD' momentum factor available on Kenneth French's website. Using the Fama-French 3-factor model or the 'PR1YR' momentum factor as constructed in Carhart (1997), the value-weighted long-short portfolios based on G-Index decile sorts yield statistically significant industry-adjusted alphas - using 48 FF industry group matched portfolios - for the 1990-1999 period, as also shown in Lewellen and Metrick (2009). However, we find that for all other sub-periods and for the full time period, our results using 48 FF industry group matched portfolios are robust to not including the momentum factor. Our results for non-industry adjusted returns or using three-digit SIC level matched portfolios are also robust to not including the momentum factor.

results for both value and equally-weighted hedge portfolios. The abnormal returns are calculated over the full 1978-2007 time period (i.e., with constant betas estimated in-sample). We also plot the fit from a regression of the respective monthly abnormal returns series on a constant and a simple time trend. For both value and equally-weighted hedge portfolios, this time trend has a negative coefficient, though it is only (strongly) statistically significant for the equally-weighted hedge portfolio.



Finally, Table IX presents analogous results on quintile and decile portfolios based on the E-Index of Bebchuk, Cohen & Ferrell (2009). The main conclusion is that over the full period of 1978-2007, portfolios with low E-Index stocks significantly outperform high E-Index stocks, with statistically significant alphas for both quintile and decile spread portfolios using either value- or equally weighting. For example, the long-short portfolio buying stocks with E-Index in the lowest decile and selling stocks in the highest decile generates an annualized alpha of 3.37% (t-statistic of 2.56) using value-weighting and of 2.26% (t-statistic of 2.82) using equally-weighting. However, almost all of the abnormal return seems due to the post-1990 period. This

may well be largely due to a limited cross-sectional spread in firms' E-Index scores before 1990. For example, the difference between the 10% and 90% percentiles of the E-Index equals 2 until 1982 and 3 until 1986. At the same time, the results for the E-Index are not robust to industry-adjusting returns. None of the hedge portfolio alphas are significant for industry-adjusted returns, neither for value nor equally-weighted portfolios, and neither for the full time period nor any of the sub-periods (results not reported to save space).

2. Interpretation of the Governance-Related Abnormal Returns

Gompers, Ishii and Metrick (2003) advance three different interpretations of the abnormal return results they document. First, their Hypothesis I is that the market initially underestimated the agency costs generated by the weakening of the shareholder rights (or increase of the G-Index). As a result, firm values of high G-Index firms were initially too high at the beginning of their time period, and subsequent declined, and the opposite for low G-Index firms. We call this the 'learning' hypothesis. The second, 'anticipation' hypothesis distinguishes between the executives and the market, where executives of firms correctly anticipated their firms' poor subsequent performance and increased their firms' G-Index scores to protect against takeovers to keep their jobs. The third 'other characteristics' hypothesis is that the G-Index does not cause higher agency costs, but G-Index scores are correlated with other characteristics that was associated with abnormal returns.

Our fourth 'risk' hypothesis follows from Cremers, Nair and John (2009), who propose a risk-based explanation by arguing that likely takeover targets (e.g., with low G-Index scores) are more sensitive to aggregate cash flow shocks and thus have a higher expected return.[17] They find that the post-1990 governance-related alphas disappear once they add a takeover-factor to the four-factor Carhart model.

Our extended time period allows a reconsideration of these five hypotheses. Overall, our evidence seems most consistent with the 'learning' hypothesis. As suggested by Figure 5 and Table VII, the alpha of the governance hedge portfolio has trended down since 1978. This seems generally consistent with the concept of learning, where abnormal returns are highest in the beginning and then, as investors learn about the importance of governance, such abnormal returns decline over time. The 1990-1999 period is the main exception, with a temporary increase in the alphas followed by a steep decline. Such volatility is of course inherent in

[17] The greater sensitivity of likely target firms to aggregate cash flow shocks follows from the empirical finding that takeovers tend to cluster together in times with more free cash availability. The higher expected return assumes that inter-temporal hedging effects are second-order. Target shareholders expect to receive a large payout upon the takeover, which typically happens in good times when they least need it. Intuitively, in that sense likely targets can be interpreted as 'anti-insurance' stocks that are riskier and thus commanding a higher expected return.

calculating abnormal returns over relatively short periods. The finding that governance-association with abnormal returns is strongest for smaller capitalization stocks is also consistent with learning, assuming that investors generally have less information about smaller capitalization stocks.

According to the second 'anticipation' hypothesis, as Gompers, Ishii and Metrick (2003) argue, the market would have been surprised by the relatively poor operating performance of the high G-Index firms, even if managers anticipated these. However, over the full time period, we do not find any (negative) association between the G-Index and operating performance as measured by accounting profits and sales growth. This is the main finding from Gompers, Ishii and Metrick (2003) that is not robust to extending the time period. In addition, Core, Guay and Rusticus (2006) find no evidence that the market was actually surprised by the low operating performance of high G-Index firms 1990-1999. Finally, Gompers, Ishii and Metrick (2003) investigate and also reject this hypothesis by considering insider trading, finding no evidence that e.g. insiders in high G-Index firms sold shares in advance of subsequent poor stock market performance.

For the third 'other characteristics' hypothesis, Gompers, Ishii and Metrick (2003) ran monthly cross-sectional regressions of excess returns on the G-Index and other characteristics. However, their analysis was inconclusive, mostly due to a lack of statistical power. Our longer time period improves such power and further permits the investigation of time variation in the G-Index (and in the other characteristics) through the use of firm fixed effects. For this purpose, we first estimate firm-level alphas using the four-factor Carhart model, for each period over which the G-Index is updated.[18] Second, we run pooled panel regressions of the annualized abnormal returns on the level of the G-Index with year and firm fixed effects. As controls, we also add the abnormal return from the previous period and the following firm characteristics: the market capitalization, percentage of institutional ownership, return on equity, sales growth, the industry Herfindahl index, the dividend yield and Q, where all characteristics are taken at the end of the fiscal year preceding the start of the period over which abnormal returns are calculated. Table X presents the results for the full time period as well as various sub-periods.[19]

[18] In order to improve beta estimates, we employ daily returns, and add lagged factors to account for trading non-synchronicity (price staleness), bid-ask bounces or other microstructure issues, effectively using an 8-factor model. As we update the G-Index every year for 1978-1990, for those years, each period over which abnormal returns are calculated runs from the beginning of July until the end of June the following year, so each 'period' lasts 12 months. After 1990, we change the portfolio formation at the end of the month that new data became available from IRRC, and each period over which abnormal returns are calculated starts at the beginning of the next month and runs until the month that new data again becomes available (typically about 2 years).

[19] Variable definitions follow Gompers, Ishii and Metrick (2003), if relevant. Robust standard errors are clustered by firm, but results are robust to clustering by year or not clustering.

Over the full time period the coefficient of the G-Index is negative and significant, both economically and statistically. For example, the coefficient in the full specification of column 2 equals -0.0058, such a one standard deviation shock increase to the G-Index (2.9) is associated with a -1.7% annualized abnormal return over the following period. Several of the controls are significant as well. For example, greater firm size, more institutional ownership and higher Q are associated with lower abnormal returns. Across sub-periods, the G-Index coefficient remains strongly statistically significant only for 1978-1989. For 1990-2007 and 1990-1999, the G-Index coefficient is similar to the coefficient for the whole 1978-2007 period, but without statistical significance. This is consistent with the findings in Gompers, Ishii and Metrick (2003), and with a lack of statistical power in those sub-periods due to limited time variation in the G-index.[20] In conclusion, we find that neither the abnormal return results over the whole period (nor for 1978-1989 over which they seem to be the most robust) can be explained by these other characteristics or by year and firm fixed effects.

For the fourth 'risk' hypothesis, we tried appending the takeover factor as constructed in Cremers, Nair and John (2009) to the four-factor model, and estimate abnormal returns with this five-factor model of governance-sorted portfolios as done for Tables VII-IX. While their takeover factor can explain much of the governance alphas post 1990, as documented in Cremers, Nair and John (2009), we find that if used over the whole period the alpha estimates are robust to adding the takeover factor. One possible explanation is that the 1980s takeover wave may have been more unanticipated. Alternatively, governance changes over the 1980s may have been, at least partly, a response to anticipated takeover threats, such that in equilibrium there was no relationship between the level of the G-Index and takeover likelihood. Therefore, we conclude that the 'learning' interpretation seems most consistent with our results.

VI. Conclusion

While corporate governance has become a central research topic in corporate finance, comprehensive data on corporate governance has generally not been available prior to the 1990s. In this paper we introduce a database consisting of a large sample of firms starting in 1978 tracking these firms' G- and E-Index scores, as well as the presence or absence of each of the twenty-four G-Index corporate governance provisions. This enables us to study thirty years of

[20] For both the 1990-2007 and 1990-1999 sub-periods, the coefficient of the G-Index is negative and statistically significant at 1% in the regression without year and firm fixed effects. The insignificance of the G-Index using only data starting in 1990 is also consistent with Chidambaran, Palia and Zheng (2008) who focus on the relationship between large governance changes and subsequent returns and performance changes.

corporate governance. For nineteen of the twenty-four G-Index provisions we follow our reconstruction of the IRRC's coding protocol, while for five of these provisions – director duties, director liability, anti-greenmail, limits on special meeting and limits on written consent – we have adopted a somewhat different coding protocol. With respect to the first three of these five provisions, we have coded for additional state statutes than those tracked by the IRRC while with respect to the last two (limits on special meeting and written consent) our coding protocol, unlike that of the IRRC, takes into account state statutory defaults which are important when a firm's charter or bylaw is silent on the issue.

Our analysis therefore has the considerable benefit of using "out of sample" data with considerable time variation to test existing hypotheses in the literature. We investigate the central issue of the effect of governance on firm valuation by exploiting the fact, which we document, that many changes in corporate governance occurred in the 1980s, with relative stability thereafter. We find a robust negative association, both economically and statistically meaningful, between poor governance (as proxied by the G- and E-Indexes) and firm valuation for the 1978-2006 time period. We find little evidence, however, to support the "reverse causation" explanation for this negative association (i.e., we do not find that low-valued firms tended to adopt more G-Index provisions).

To further explore the relationship between governance and firm value, we investigate whether governance affects firm valuation primarily through a "takeover channel", i.e. by affecting the probability of takeover rather than primarily through affecting a firm's current operating performance (as proxied by accounting profits and sales growth). Along these lines, we first document the substantial incidence of all types of M&A activity during much of the 1980s. We then explain that the law governing the use of takeover defenses during this time was also in considerable flux. Specifically, the legality of the poison pill was quite uncertain (as evidenced by the pre-1985 discussions and debates by leading corporate lawyers and corporate law scholars and the SEC's own position in *Household*) till the issuance of the seminal *Household* opinion by the Delaware Supreme Court in 1985 judicially validating the adoption of a poison pill as within the authority vested in a target board. If the takeover channel is important, we hypothesize that poison pills, classified boards (which are a far more potent antitakeover defense when combined with a poison pill) and the G-Index more generally should be associated with more pronounced negative firm valuation effects after 1985. And we find that this was in fact the case for both the G-Index and classified boards, with the poison pill results being not quite statistically significant at the 10% although quite large economically.

We then investigate whether the G-Index has a more negative effect on firm value when a firm happens to be in an industry with a "high" level of M&A activity rather than a "low" level. This hypothesis exploits the fact that mergers cluster by industry and appear to be, according to the literature, driven by unexpected exogenous shocks to industry structure, regulation or technological innovation. We find that this is the case, even with firm fixed effects. Finally, in exploring the potential relevance of the takeover channel relative to other explanations for the negative association between poor governance and firm valuation, we document that there does not appear to be a statistically robust association between governance and a firm's operating performance.

Our paper then examines the association between governance and abnormal stock returns, a subject that has generated a substantial literature in the aftermath of Gompers, Ishii, and Metrick (2003) finding that good governance is associated with positive abnormal returns for the 1990-1999 period. We make a number of findings that bear on this literature.

First, for the full 1978-2007 time period we document, whether using value-weighted or equally-weighted portfolios, that there are positive, strongly statistically significant abnormal returns (using the Fama-French-Cahart four-factor model) associated with going long good corporate governance firms and shorting those with poor governance (whether proxying the quality of corporate governance by the G- or E-Index). Second, we find that abnormal returns for equally-weighted portfolios over the 1978-2007 period is robust to industry-adjusting as described in Johnson, Moorman, and Sorescu (2008). Third, our analysis of returns suggest that governance seems to matter most for smaller capitalization stocks and that the association between governance and abnormal returns generally appears to decline over our time period with a clearly negative time trend for equally-weighted abnormal returns over the 1978-2007 period.

Our extended time period allows for a reconsideration of the different explanations in the literature for the positive association between good governance and positive abnormal returns: (1) the market learned over time the importance of good governance; (2) firms adopted poor governance in anticipation (but unknown by the market) of future poor operating performance; (3) "other characteristics" were associated with high and low G-Index firms that were in turn associated with abnormal returns; and (4) low G-Index scores proxy for some source of un-diversifiable risk. We find our return findings most consistent with learning, (1), as abnormal returns are highest in the beginning of our time period and then, as investors presumably learn the importance of governance, decline over time. We directly investigate but fail to find evidence to support the other hypotheses.

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TABLE I
COMPARISON OF CF DATABASE AS OF 1989 WITH IRRC DATABASE AS OF 1990

This table compares the incidence of the twenty-four corporate governance provisions in the G-Index as of 1989 as reflected in the Cremers-Ferrell database with the incidence of these provisions as reflected in the IRRC database as of 1990. Any difference in incidence between the two years greater than the absolute value of .10 is in bold. For five of these provisions – limits on written consent, limits on special meeting, director liability, director duties and anti-greenmail – the Cremers-Ferrell coding of these variables varied from that of the IRRC. For these five, IRRC data was used to estimate the incidence of these five provisions using the Cremers-Ferrell coding protocol (the "IRRC corrected" incidence).

Provisions	1989 Incidence	1990 Incidence	Difference
Classified board	.57	.57	0.00
Supermajority	.44	.39	-.05
Limit to amend bylaws	.20	.14	-.06
Limit to amend charter	.04	.03	-.01
Poison pill	.52	.52	0.00
Golden parachute	.53	.50	-.03
Limits to special meeting	.88	.24	**-.64**
Limits to special meeting (IRRC corrected)	.88	.75	**-.13**
Limits to written consent	.71	.24	**-.47**
Limits to written consent (IRRC corrected)	.71	.64	-.07
No cumulative voting	.82	.83	.01
No secret ballot	.96	.98	.02
Director indemnification K	.20	.17	-.03
Director indemnification	.96	.41	**-.55**
Director liability	.87	.73	**-.15**
Director liability (IRRC corrected)	.87	.80	-.07
Compensation plans	.46	.44	-.02
Severance agreements	.19	.14	-.05
Unequal vote	.01	.02	.01
Fair price	.62	.57	-.05
Cash out law	.41	.40	-.01
Director duties	.38	.10	**-.28**
Director duties (IRRC corrected)	.38	.38	0.00
Business combination	.79	.84	.05
Anti-greenmail	.22	.19	-.03
Anti-greenmail (IRRC corrected)	.22	.21	-.01
Pension Parachutes	.06	.04	-.02
Silver parachutes	.04	.04	0.00
Blank check	.24	.76	**.52**

TABLE II
NUMBER OF FIRMS CONTAINED IN CREMERS-FERRELL DATABASE

This table documents the number of firms for which corporate governance data was collected for each year from 1978 to 1989. It also documents the number of firms for which there was missing data for no more than 11 out of 24 provisions; no more than 7 provisions; and no more than 3 missing. The table also reports the median number of provisions for which data was missing for the no more than 7 missing group, which is used throughout the paper unless specifically noted.

Year	Firms for which data was collected	No more than 11 missing	No more than 7 missing	No more than 3 missing	Median # of missing for the no more than 7 group
1978	1,208	996	215	82	6
1979	1,184	978	285	146	0
1980	1,159	957	471	364	0
1981	1,127	933	554	478	0
1982	1,095	907	565	494	0
1983	1,078	958	638	542	0
1984	1,039	914	689	611	0
1985	991	869	674	594	0
1986	944	828	675	594	0
1987	897	795	670	579	0
1988	847	844	766	638	0
1989	788	786	730	614	0

TABLE III
FIRM VALUATION

This Table presents regressions where the dependent variable is industry-adjusted Tobin's Q (using the Fama-French 48 (1997) industry classification) with industry-adjustments done by subtracting the median value using all Compustat firms. Panel A are annual cross-sectional regressions and their associated t-statistics. These regressions include the same controls as in Panels B and C, though these are not shown to save space. Panels B and C are pooled panel regressions on either the G-Index, G-Subgroup Index or the G-Index Uncorrected and various controls. Both Panels B and C control for year fixed effects and in some regressions firm or 48 industry group fixed effects. The controls include Log Book (log of book value of total assets), Capex/Assets (ratio of capital expenditures over book value of total assets), Capex Missing (dummy variable equal to one if Capex are missing in Compustat), Leverage (ratio of book value of total debt over book value of total assets), R&D (ratio of research and development expenditures over the book value of total assets), R&D Missing (dummy variable equal to one if R&D expenditures are missing in Compustat), S&P 500 dummy (equal to one if the firm is included in the S&P 500 index), PPE/Assets (ratio of property, plant and equipment expenditures over the book value of total assets), PPE Missing (dummy variable equal to one if PPE expenditures are missing in Compustat). In Panels A and B, the maximum number of missing provisions allowed is 7. T-statistics are based on robust standard errors clustered at the firm-level.

PANEL A. ANNUAL CROSS-SECTIONAL REGRESSIONS OF INDUSTRY-ADJUSTED Q ON G-INDEX

	G-Index	t-statistic	R2
1978	-1.18%	-0.70	14.47%
1979	-0.65%	-0.40	8.34%
1980	-0.58%	-0.33	8.71%
1981	0.17%	0.16	11.33%
1982	-2.45%	-1.75	14.54%
1983	-2.64%	-2.44	14.44%
1984	-2.04%	-2.85	12.19%
1985	-1.96%	-2.45	9.98%
1986	-1.01%	-1.50	7.61%
1987	-1.60%	-2.31	9.26%
1988	-1.25%	-2.03	8.63%
1989	-1.22%	-1.66	8.35%
1990	-2.21%	-3.28	8.81%
1991	-3.27%	-4.01	10.81%
1992	-3.18%	-4.10	11.46%
1993	-2.80%	-3.22	7.18%
1994	-2.11%	-2.75	7.67%
1995	-2.12%	-2.51	6.96%
1996	-1.50%	-1.65	9.62%
1997	-1.32%	-1.35	10.60%
1998	-2.48%	-2.45	16.15%
1999	-2.71%	-2.11	12.10%
2000	-2.62%	-2.11	17.97%
2001	-2.26%	-1.93	19.86%
2002	-0.68%	-0.73	18.18%
2003	-1.25%	-1.16	14.11%
2004	-1.10%	-1.06	10.93%
2005	-1.06%	-0.97	9.84%
2006	-0.46%	-0.45	11.75%

PANEL B. POOLED PANEL REGRESSIONS OF INDUSTRY-ADJUSTED Q

	1978-2006			1978-1989		1990-2006		1990-1999	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
G-Index	-0.020	-0.018	-0.011	-0.007	0.001	-0.021	-0.016	-0.022	-0.022
	(3.76)	(3.74)	(1.92)	(1.56)	(0.23)	(3.59)	(1.61)	(3.61)	(1.46)
Log Book	-0.079	-0.087	-0.167	-0.068	-0.168	-0.097	-0.224	-0.085	-0.185
	(7.03)	(6.51)	(7.12)	(5.59)	(6.06)	(5.79)	(7.86)	(5.01)	(4.82)
Capex/Assets	1.994	2.533	1.758	1.159	0.688	3.160	2.045	2.665	1.485
	(8.04)	(9.12)	(8.84)	(5.13)	(3.21)	(8.37)	(8.03)	(6.55)	(5.34)
Capex Missing	-0.005	-0.196	-0.068	-0.120	-0.078	-0.193	-0.070	-0.209	-0.068
	(0.11)	(3.41)	(1.53)	(2.03)	(2.29)	(2.92)	(1.09)	(3.28)	(0.85)
Leverage	-0.686	-0.728	-0.400	-0.439	0.257	-0.803	-0.541	-0.785	-0.425
	(7.30)	(7.29)	(5.12)	(3.29)	(2.39)	(6.76)	(5.75)	(6.01)	(3.70)
R&D	0.343	0.911	0.400	2.861	0.602	0.833	0.338	2.161	1.408
	(1.73)	(1.70)	(2.81)	(3.09)	(0.67)	(1.69)	(2.91)	(4.46)	(2.26)
R&D Missing	0.014	-0.083	0.057	0.027	-0.019	-0.130	0.084	-0.047	-0.006
	(0.47)	(2.31)	(1.52)	(0.86)	(0.51)	(2.77)	(1.48)	(0.97)	(0.08)
S&P500	0.347	0.356	0.127	0.167	0.111	0.434	0.132	0.333	0.146
	(9.83)	(10.43)	(3.58)	(5.73)	(2.74)	(9.76)	(3.06)	(7.11)	(2.46)
PPE/Assets	-0.328	-0.340	-0.005	-0.055	-0.074	-0.347	0.000	-0.183	0.052
	(4.89)	(5.12)	(0.10)	(0.56)	(0.62)	(4.72)	(0.01)	(1.90)	(0.55)
PPE Missing	-0.138	-0.166	-0.037	0.053	0.009	-0.195	-0.057	-0.048	-0.051
	(3.80)	(4.66)	(1.23)	(1.18)	(0.16)	(4.77)	(1.80)	(0.91)	(1.08)
Firm F.E.	No	No	Yes	No	Yes	No	Yes	No	Yes
Industry F.E.	No	Yes	No	Yes	No	Yes	No	Yes	No
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	23,296	23,296	23,296	6,381	6,381	16,915	16,915	11,054	11,054
R2	10.10%	15.46%	65.94%	21.14%	74.23%	15.94%	70.14%	14.54%	73.97%

PANEL C: POOLED PANEL REGRESSIONS OF INDUSTRY-ADJUSTED Q: ROBUSTNESS CHECKS

All specifications use the 1978-2006 period.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
G-Index	-0.011	-0.010	-0.010					
	(1.79)	(2.00)	(1.98)					
E-Index				-0.049	-0.012			
				(5.08)	(1.05)			
G-Subgroup						-0.027	-0.012	
						(4.09)	(1.67)	
G-Uncorrected								-0.009
								(1.55)
Missing Provisions								
Maximum	5	11	15	2	2	9	9	7
Panel B Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Industry F.E.	No	No	No	Yes	No	Yes	No	No
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	22,404	26,782	26,893	22,986	22,986	24,756	24,756	23,296
R2	66%	65%	65%	16%	66%	15%	65%	66%

TABLE IV
GOVERNANCE AND REVERSE CAUSATION

The dependent variable is firms' G-Index score focusing on one of three time periods: 1978-2006; 1978-1989; and 1990-2006. Moreover, all the independent variables are the previous year's values (one year lagged). The regressions are pooled panel regressions with firm fixed effects and, in some regressions, year fixed effects. T-statistics are based on robust standard errors clustered at the firm-level. See Table III for a description of the independent variables.

Dependent: G-Index		1978-2006		1979-1989		1990-2006	
		(1)	(2)	(3)	(4)	(5)	(6)
Q	coefficient	0.29	-0.07	1.23	0.05	0.00	-0.05
	t-statistic	(2.71)	(6.05)	(5.87)	(0.67)	(0.20)	(4.51)
Log Book	coefficient	0.86	0.13	2.67	0.14	0.37	0.08
	t-statistic	(6.25)	(4.18)	(9.76)	(2.98)	(6.12)	(2.24)
Capex/Assets	coefficient	-3.19	0.67	-7.15	0.57	-0.18	0.61
	t-statistic	(2.68)	(2.91)	(3.65)	(1.52)	(0.51)	(2.06)
Capex Missing	coefficient	0.58	0.21	1.19	0.14	0.09	0.07
	t-statistic	(2.82)	(1.74)	(1.59)	(0.27)	(1.25)	(0.88)
Leverage	coefficient	1.09	0.40	1.76	0.64	0.21	0.21
	t-statistic	(4.38)	(4.25)	(5.11)	(3.18)	(1.79)	(2.11)
R&D	coefficient	3.06	-0.14	18.39	5.15	0.42	-0.55
	t-statistic	(2.96)	(0.41)	(3.69)	(3.24)	(1.28)	(2.19)
R&D Missing	coefficient	0.15	-0.03	0.03	-0.29	0.06	0.01
	t-statistic	(2.38)	(0.51)	(0.25)	(2.30)	(1.49)	(0.38)
S&P 500	coefficient	0.18	0.20	0.53	0.11	0.14	0.24
	t-statistic	(2.13)	(5.18)	(2.53)	(1.27)	(2.29)	(5.81)
PPE/Assets	coefficient	0.32	-0.06	1.36	0.35	0.04	0.00
	t-statistic	(2.43)	(0.92)	(2.50)	(1.19)	(0.61)	(0.05)
PPE Missing	coefficient	-0.13	-0.07	-0.64	0.27	-0.32	-0.02
	t-statistic	(1.13)	(1.54)	(3.33)	(1.20)	(5.82)	(0.48)
Total IO	coefficient	2.90	0.43	5.89	-0.07	0.98	0.53
	t-statistic	(5.23)	(4.18)	(7.64)	(0.31)	(10.57)	(5.30)
ROA	coefficient	-1.84	0.21	-2.80	-0.30	-0.49	-0.07
	t-statistic	(2.10)	(1.04)	(1.78)	(0.69)	(1.75)	(0.46)
Firm F.E.		Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.		No	Yes	No	Yes	No	Yes
N		20,906	20,906	6,015	6,015	14,891	14,891
R2		76.02%	86.36%	68.21%	85.01%	90.84%	91.40%

TABLE V
POISON PILLS AND CLASSIFIED BOARDS

The dependent variable is industry-adjusted, year-end Tobin's Q over the period 1978-2006. In columns (1)(3) independent variables include the G-Index and the G-Index interacted with a dummy variable for whether the year is prior to 1985 and a dummy for whether the year is equal to 1985. In columns (4)(5) independent variables include classified board interacted with a pre-1985 and 1985 dummy variables and columns (6)(7) have pre-1985 and 1985 dummy variables interact with poison pills. All controls in Table III are included as well in all regressions; see Table III for a description. All specifications include year fixed effects, and either 48 industry group or firm fixed effects. T-statistics are based on robust standard errors clustered at the firm-level and are given between parentheses.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Gindex x Pre-1985	0.022	0.020	0.011				
	(1.82)	(1.81)	(1.14)				
Gindex x 1985	0.002	0.002	0.006				
	(0.20)	(0.18)	(0.72)				
Gindex	-0.021	-0.020	-0.012				
	(3.70)	(3.68)	(1.98)				
CBoard x Pre-1985					0.117		
					(2.87)		
CBoard x 1985					0.047		
					(1.09)		
CBoard				-0.065	-0.081		
				(2.31)	(2.53)		
PPill x Pre-1985							0.161
							(1.35)
PPill x 1985							0.053
							(0.58)
PPill						-0.116	-0.117
						(4.02)	(4.02)
Controls Table III	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	No	No	Yes	No	No	No	No
Industry F.E.	No	Yes	No	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	23,296	23,296	23,296	23,247	23,247	23,296	23,296
R2	10.12%	15.48%	65.94%	15.29%	15.35%	15.54%	15.54%

TABLE VI
GOVERNANCE AND THE TAKEOVER CHANNEL

PANEL A: POOLED PANEL REGRESSIONS OF Q WITH M&A-LEVEL INTERACTIONS

The dependent variable is industry-adjusted, year-end Tobin's Q over the period 1982-2006 as well as sub-periods 1982-1990 and 1991-2006. Low (High) Friendly Ind48 is a dummy variable equal to one if the firm is in an industry experiencing a relatively low (high) level of friendly takeover activity in that year. Low and high are defined as the industry's percentage of all Compustat firms engaged in a friendly takeover falling in the first and fourth quartile, respectively. These two dummy variables are interacted with the G-Index. We separately control for the industry's percentage of all Compustat firms engaged in a friendly takeover (48 Ind. % friendly, #). All controls in Table III are included as well in all regressions; see Table III for a description. All specifications include year fixed effects, and either 48 industry group or firm fixed effects. T-statistics are based on robust standard errors clustered at the firm-level and are given between parentheses.

Dependent: industry-adjusted Q	**1982-2006**		**1982-1990**		**1991-2006**	
	(1)	(2)	(3)	(4)	(5)	(6)
G-Index * Low Friendly Ind48	0.003	0.003	0.001	0.000	0.004	0.005
	(1.72)	(2.80)	(0.35)	(0.07)	(1.96)	(3.54)
G-Index	-0.019	-0.011	-0.016	0.003	-0.020	-0.017
	(3.73)	(1.79)	(3.56)	(0.63)	(3.31)	(1.80)
G-Index * High Friendly Ind48	-0.004	-0.002	-0.004	-0.004	-0.005	-0.002
	(2.15)	(1.82)	(1.77)	(2.08)	(2.00)	(1.30)
48 Ind. % friendly, #	-0.24	-0.28	0.41	0.22	-0.45	-0.50
	(0.54)	(1.12)	(1.08)	(0.65)	(0.76)	(1.68)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	No	Yes	No	Yes	No	Yes
Industry F.E.	Yes	No	Yes	No	Yes	No
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
N	21,867	21,867	6,170	6,170	15,697	15,697
R2	15.32%	66.98%	16.70%	80.39%	16.39%	71.42%

PANEL B: POOLED PANEL REGRESSIONS OF INDUSTRY-ADJUSTED ROA AND NPM

The dependent variable is industry-adjusted, year-end ROA in Panel B1, and industry-adjusted, year-end NPM in Panel B2. We show results for the full 1978-2006 period as well as various sub-periods. ROA is the firm's return on assets, defined as the net income divided by the book value of total assets. NPM is the firm's net profit margin, defined as the net income divided by the total sales. Both ROA and NPM are in percentage points. All controls in Table III are included as well in all regressions; see Table III for a description. All specifications include year fixed effects, and (except for column 1) either 48 industry group or firm fixed effects. T-statistics are based on robust standard errors clustered at the firm-level and are given between parentheses.

	1978-2006			1978-1989		1990-2006		1990-1999	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel B1. ROA as the dependent									
G-Index	-0.02	-0.02	-0.03	0.17	0.08	-0.05	-0.13	-0.07	-0.07
	(0.29)	(0.38)	(0.47)	(2.40)	(0.93)	(1.13)	(1.72)	(1.38)	(0.75)
N	24,339	24,339	24,339	6,559	6,559	17,780	17,780	11,492	11,492
R2	13.05%	42.18%	72.35%	31.63%	70.58%	48.86%	78.17%	44.68%	80.79%
Panel B2. NPM as the dependent									
G-Index	-0.05	-0.10	-0.10	0.01	0.03	-0.12	-0.14	-0.12	-0.04
	(0.53)	(1.90)	(0.97)	(0.12)	(0.33)	(2.19)	(1.01)	(2.36)	(0.31)
N	24,724	24,724	24,724	6,585	6,585	18,139	18,139	11,761	11,761
R2	8%	51%	71%	27%	53%	64%	79%	57%	78%
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	No	No	Yes	No	Yes	No	Yes	No	Yes
Industry F.E.	No	Yes	No	Yes	No	Yes	No	Yes	No
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TABLE VII
G-INDEX EXCESS AND ABNORMAL RETURNS

Panel A presents excess returns and abnormal return results as measured by the Fama-French-Carhart four-factor model, with portfolios weighted by stock's market capitalization. Panel B presents excess and abnormal return (Alpha) results with portfolios that are equally weighted. Both excess and abnormal returns are annualized and t-statistics are given below the returns. We use four different time periods. Q1 and Q5, respectively, are the results for the portfolio with the 20% lowest and highest G-Index stocks at portfolio formation, while Q1-Q5 is the long-short portfolio that buys stocks in Q1 and sells stocks in Q5. D1, D10 and D1-D10 are the analogous results for sorting stocks into deciles according to their G-Index levels.

PANEL A. VALUE-WEIGHTED PORTFOLIOS

	1978:7 - 2007:6		1978:7 - 1990:8		1990:9 - 2007:6		1990:9 - 1999:12	
G-Index Group	Excess Returns	Carhart Alphas	Excess Returns	Carhart Alphas	Excess Returns	Carhart Alphas	Excess Returns	Carhart Alphas
Q1	8.79%	1.59%	7.80%	1.82%	9.50%	1.80%	16.64%	1.87%
	(0.59)	(2.45)	(0.47)	(2.05)	(0.70)	(1.95)	(1.26)	(1.96)
Q5	8.81%	-0.12%	8.12%	1.78%	9.31%	0.89%	12.03%	-2.47%
	(0.57)	(0.10)	(0.43)	(1.38)	(0.73)	(0.59)	(0.92)	(1.60)
Q1-Q5	-0.02%	1.71%	0.31%	0.04%	0.19%	0.91%	4.61%	4.34%
	(0.00)	(1.30)	(0.05)	(0.03)	(0.02)	(0.53)	(0.78)	(2.13)
D1	10.21%	2.37%	10.42%	3.68%	10.06%	2.48%	17.09%	2.46%
	(0.66)	(2.40)	(0.58)	(2.65)	(0.74)	(1.91)	(1.23)	(1.60)
D10	8.40%	-1.56%	7.72%	0.81%	8.89%	-0.95%	9.40%	-6.00%
	(0.52)	(1.07)	(0.39)	(0.42)	(0.67)	(0.55)	(0.69)	(2.72)
D1-D10	1.82%	3.93%	2.71%	2.87%	1.17%	3.43%	7.69%	8.46%
	(0.21)	(2.43)	(0.34)	(1.23)	(0.13)	(1.66)	(0.81)	(2.81)

PANEL B. EQUALLY-WEIGHTED PORTFOLIOS

	1978:7 - 2007:6		1978:7 - 1990:8		1990:9 - 2007:6		1990:9 - 1999:12	
G-Index Group	Excess Returns	Carhart Alphas	Excess Returns	Carhart Alphas	Excess Returns	Carhart Alphas	Excess Returns	Carhart Alphas
Q1	12.68%	3.09%	11.93%	5.55%	13.23%	2.40%	18.50%	3.40%
	(0.73)	(3.43)	(0.60)	(5.46)	(0.87)	(2.16)	(1.24)	(2.22)
Q5	10.75%	-0.17%	8.60%	1.71%	12.31%	0.56%	16.94%	1.56%
	(0.63)	(0.15)	(0.43)	(1.48)	(0.86)	(0.41)	(1.20)	(0.90)
Q1-Q5	1.93%	3.26%	3.33%	3.84%	0.92%	1.84%	1.56%	1.84%
	(0.35)	(3.64)	(0.75)	(2.88)	(0.15)	(1.64)	(0.32)	(1.33)
D1	13.25%	3.53%	14.93%	8.64%	12.04%	1.36%	16.54%	2.02%
	(0.76)	(3.10)	(0.73)	(5.82)	(0.81)	(1.05)	(1.14)	(1.19)
D10	10.42%	-1.05%	8.49%	0.73%	11.82%	-0.18%	15.86%	0.19%
	(0.60)	(0.80)	(0.41)	(0.52)	(0.81)	(0.11)	(1.08)	(0.09)
D1-D10	2.83%	4.58%	6.45%	7.91%	0.21%	1.54%	0.69%	1.83%
	(0.43)	(3.88)	(0.96)	(3.96)	(0.03)	(1.10)	(0.11)	(0.92)

TABLE VIII
INDUSTRY-ADJUSTED G-INDEX ABNORMAL RETURNS

This table presents results for portfolios sorted on the level of the G-Index, using abnormal returns (Alphas) from the four-factor Fama-French-Carhart model adjusted for industry-matched portfolios at the 3-digit SIC level (as done in Johnson, Moorman & Sorescu (2008)) in panel A, and at the 48 Fama-French industry groups level in panel B. See the text for an explanation for industry-adjusting procedures. We show results both for portfolios weighted by stock's market capitalization (VW) and for portfolios that are equally weighted (EW). The abnormal returns are annualized and t-statistics are given below the returns. We use four different time periods. Q1 and Q5, respectively, are the results for the portfolio with the 20% lowest and highest G-Index stocks at portfolio formation, while Q1-Q5 is the long-short portfolio that buys stocks in Q1 and sells stocks in Q5. D1, D10 and D1-D10 are the analogous results for sorting stocks into deciles according to their G-Index levels.

PANEL A. INDUSTRY-ADJUSTED ALPHAS USING 3-DIGIT SIC-MATCHED PORTFOLIOS

	1978:7 - 2007:6		1978:7 - 1990:8		1990:9 - 2007:6		1990:9 - 1999:12	
G-Index	Ind-Adjusted Alphas		Ind-Adjusted Alphas		Ind-Adjusted Alphas		Ind-Adjusted Alphas	
Group	VW	EW	VW	EW	VW	EW	VW	EW
Q1	0.14%	1.72%	1.41%	4.45%	-1.06%	0.03%	0.47%	0.50%
	(0.11)	(2.44)	(1.10)	(5.29)	(0.49)	(0.03)	(0.14)	(0.39)
Q5	0.33%	0.05%	0.39%	0.07%	0.79%	0.59%	-0.64%	-0.37%
	(0.39)	(0.07)	(0.32)	(0.07)	(0.67)	(0.69)	(0.41)	(0.32)
Q1-Q5	-0.19%	1.67%	1.02%	4.38%	-1.86%	-0.55%	1.11%	0.87%
	(0.12)	(1.90)	(0.60)	(3.65)	(0.78)	(0.46)	(0.30)	(0.56)
D1	0.42%	3.42%	2.58%	7.72%	0.20%	1.05%	-2.14%	0.32%
	(0.29)	(3.64)	(1.82)	(5.65)	(0.09)	(0.91)	(0.67)	(0.21)
D10	-0.66%	0.09%	0.66%	0.53%	-1.17%	0.21%	-1.20%	0.54%
	(0.61)	(0.10)	(0.37)	(0.36)	(0.86)	(0.17)	(0.64)	(0.33)
D1-D10	1.08%	3.32%	1.93%	7.19%	1.37%	0.84%	-0.94%	-0.22%
	(0.58)	(2.57)	(0.80)	(3.51)	(0.50)	(0.51)	(0.24)	(0.10)

PANEL B. INDUSTRY-ADJUSTED ALPHAS USING 48 FF INDUSTRY GROUP-MATCHED PORTFOLIOS

	1978:7 - 2007:6		1978:7 - 1990:8		1990:9 - 2007:6		1990:9 - 1999:12	
G-Index	Ind-Adjusted Alphas		Ind-Adjusted Alphas		Ind-Adjusted Alphas		Ind-Adjusted Alphas	
Group	VW	EW	VW	EW	VW	EW	VW	EW
Q1	1.02%	2.26%	1.72%	4.49%	0.75%	1.02%	1.83%	0.87%
	(1.02)	(3.11)	(1.53)	(5.55)	(0.50)	(0.97)	(1.09)	(0.70)
Q5	-0.35%	0.08%	-0.16%	0.64%	0.39%	0.49%	-0.90%	0.01%
	(0.40)	(0.11)	(0.13)	(0.60)	(0.34)	(0.57)	(0.60)	(0.00)
Q1-Q5	1.37%	2.18%	1.88%	3.85%	0.36%	0.53%	2.73%	0.87%
	(1.09)	(2.54)	(1.15)	(3.02)	(0.20)	(0.47)	(1.24)	(0.66)
D1	0.75%	2.66%	2.92%	6.94%	0.60%	0.50%	-0.04%	-0.82%
	(0.68)	(2.83)	(2.31)	(5.03)	(0.39)	(0.45)	(0.02)	(0.60)
D10	-0.91%	-0.26%	0.74%	0.43%	-1.22%	-0.06%	-2.10%	-0.06%
	(0.81)	(0.29)	(0.40)	(0.30)	(0.89)	(0.05)	(1.13)	(0.04)
D1-D10	1.66%	2.92%	2.18%	6.51%	1.81%	0.56%	2.07%	-0.75%
	(1.06)	(2.46)	(1.01)	(3.31)	(0.82)	(0.38)	(0.69)	(0.38)

TABLE IX
E-INDEX ABNORMAL RETURNS

This table presents abnormal returns (Alphas) from the four-factor Fama-French-Carhart model for portfolios sorted on the level of the E-Index. We show results both for portfolios weighted by stock's market capitalization (VW) and for portfolios that are equally weighted (EW). The abnormal returns are annualized and t-statistics are given below the returns. We use four different time periods. Q1 and Q5, respectively, are the results for the portfolio with the 20% lowest and highest E-Index stocks at portfolio formation, while Q1-Q5 is the long-short portfolio that buys stocks in Q1 and sells stocks in Q5. D1, D10 and D1-D10 are the analogous results for sorting stocks into deciles according to their E-Index levels.

	1978:7 - 2007:6		**1978:7 - 1990:8**		**1990:9 - 2007:6**		**1990:9 - 1999:12**	
E-Index	Carhart Alphas		Carhart Alphas		Carhart Alphas		Carhart Alphas	
Group	VW	EW	VW	EW	VW	EW	VW	EW
Q1	2.60%	1.96%	0.53%	3.08%	4.44%	2.70%	3.36%	-0.49%
	(3.23)	(2.09)	(0.98)	(3.71)	(3.35)	(2.15)	(2.31)	(0.33)
Q5	-0.96%	-0.49%	1.90%	2.11%	-1.35%	-0.23%	-2.44%	-3.57%
	(1.02)	(0.43)	(2.11)	(2.11)	(1.21)	(0.18)	(1.81)	(2.04)
Q1-Q5	3.56%	2.45%	-1.37%	0.97%	5.78%	2.93%	5.80%	3.08%
	(2.67)	(3.14)	(1.12)	(0.93)	(3.08)	(2.80)	(2.37)	(2.21)
D1	2.60%	1.96%	0.53%	3.08%	4.44%	2.70%	3.57%	-0.49%
	(3.23)	(2.09)	(0.98)	(3.71)	(3.35)	(2.15)	(2.54)	(0.33)
D10	-1.31%	-0.43%	1.20%	2.04%	-1.38%	-0.09%	-4.09%	-3.60%
	(1.36)	(0.38)	(1.16)	(1.96)	(1.27)	(0.07)	(2.94)	(1.98)
D1-D10	3.91%	2.39%	-0.67%	1.04%	5.81%	2.79%	7.66%	3.10%
	(2.92)	(2.92)	(0.52)	(0.93)	(3.15)	(2.55)	(3.13)	(2.11)

TABLE X
G-INDEX FIRM-LEVEL ABNORMAL RETURNS POOLED PANEL REGRESSIONS

The table presents pooled panel regressions with year and firm fixed effects, of firm-level annualized abnormal returns as measured by the Fama-French-Carhart four-factor model on the level of the G-Index plus controls. In order to improve beta estimates, we employ daily returns, and add lagged factors to account for trading non-synchronicity (price staleness), bid-ask bounces or other microstructure issues, effectively using an 8-factor model. As we update the G-Index every year for 1978-1990, for those years, each period over which abnormal returns are calculated runs from the beginning of July until the end of June the following year, so each 'period' lasts 12 months. After 1990, we change the portfolio formation at the end of the month that new data became available from IRRC, and each period over which abnormal returns are calculated starts at the beginning of the next month and runs until the month that new data again becomes available (typically about 2 years). The controls are Lagged Alpha (the annualized abnormal return from the previous period), Market Size (market capitalization of outstanding shares in millions), IO (percentage of institutional ownership as recorded by the Thompson database of quarterly 13F filings), ROE (ratio of net income over book value of equity, both from Compustat), Sales Growth (measured over a 5-year period, from ExecuComp), Herfindahl (herfindahl index of the 2-digit SIC code group using all firms in Compustat based on total sales), Dividend Yield (ratio of dividend payments over past 12 months over market capitalization), S&P 500 dummy (equal to one if the firm is included in the S&P 500 index) and Q (ratio of market to book value of the firm). All controls are taken at the end of the fiscal year preceding the start of the period over which abnormal returns are calculated. T-statistics based on robust standard errors clustered by firm are given below the regression coefficients.

	1978-2007		**1978-1989**		**1990-2007**		**1990-1999**	
Dependent Variable: Firm-level Carhart Alpha								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
G-Index	-0.0038	-0.0058	-0.0086	-0.0093	-0.0043	-0.0053	-0.0063	-0.0071
	(1.98)	(2.53)	(2.28)	(2.14)	(1.41)	(1.42)	(1.34)	(1.21)
Lagged Alpha		-0.12		-0.17		-0.17		-0.29
		(8.56)		(8.52)		(7.82)		(9.44)
Market Size		-0.51		-22.04		-0.93		-0.59
		(2.88)		(3.22)		(3.92)		(1.13)
IO		-0.10		-0.10		-0.12		-0.14
		(2.90)		(1.38)		(3.11)		(2.04)
ROE		0.01		0.03		-0.001		-0.05
		(0.59)		(0.91)		(0.06)		(1.94)
Sales Growth		0.01		-0.06		0.03		-0.02
		(0.43)		(1.92)		(1.67)		(0.53)
Herfindahl		0.09		0.00		0.11		0.20
		(0.89)		(0.01)		(0.78)		(0.67)
Dividend Yield		13.47		13.85		-18.27		-10.80
		(0.50)		(0.48)		(0.25)		(0.13)
S&P 500 dummy		-0.06		-0.05		-0.08		0.003
		(4.16)		(1.43)		(4.48)		(0.10)
Q		-0.04		-0.14		-0.04		-0.08
		(6.72)		(4.68)		(4.93)		(6.96)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	12,826	10,448	4,933	3,962	7,893	6,475	4,553	3,415
R2	23.59%	25.47%	22.35%	29.89%	33.56%	35.67%	52.21%	53.75%