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GIGO: A Functional Analysis of Corporate Governance Indices

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The intended audience for this paper is financial economists who write in the area of empirical corporate governance. For many years, economists studying corporate governance, and in particular takeover defenses, have misunderstood the way various governance mechanisms operate, and as a result many have invested a lot of effort in econometric models that cannot tell us anything. These misunderstandings have persisted since the 1980s. They currently manifest themselves in the construction and use of corporate governance indices—primarily the G Index and the E Index, which are the focus of this paper. My objective in writing this paper is to promote an improvement of modeling. It is not to be harsh, but it is to be clear.

Because the primary misunderstandings relate to takeover defenses, which figure prominently in governance indices, I begin by describing the process by which a hostile takeover works and how takeover defenses impede that process. I then explain why the indices fail to measure the strength of a company's defenses (or anything else).

1. *The Hostile Takeover Process*

There are three ways one company can acquire another. It can acquire the target's assets; it can acquire its shares; or it can use a procedure provided by statute to merge with the target. An asset acquisition requires the approval of the target board of directors, so it cannot be hostile. A statutory merger also requires the target board's approval, so it too cannot be hostile. A hostile acquisition involves an acquisition of shares directly from the target company's shareholders. The would-be acquiror makes and offer directly to all target shareholders, and each decides whether or not to accept the offer. This form of acquisition is referred to as a tender offer. (A tender offer can be non-hostile as well, but that is not relevant here.)

A hostile tender offer typically follows an offer to the target board to negotiate a friendly deal, which requires the approval of the target's board, followed by an affirmative vote of the target shareholders. The option of "going hostile," however, is always in the background. Moreover, many hostile acquisitions ultimately take the form of a friendly deal—typically a statutory merger—that is negotiated in the shadow of a hostile tender offer. In either scenario, the likelihood that a hostile tender offer will succeed influences whether the target board will agree to a sale. It is therefore essential to understand the tender offer process in order to understand any takeover that is potentially hostile. Moreover because takeover defenses are aimed at the tender offer process, it is necessary to understand that process in order to understand the defenses.

A tender offer is an offer from an acquiror directly to all of the target's shareholders, typically for all their shares, at a stated price. There are legal rules governing tender offers, the objective of which is to provide information to target shareholders, to promote collective action among them, and to minimize transaction costs. For reasons described below, the tender offer is typically conditioned on at least a majority of shares being tendered. Inevitably, fewer than 100% of tender their shares. Some target shareholders may not open their mail to see the offer was made, some may not understand, and some may not like the price and hope that other shareholders do not either, and some shareholders will be target insiders who hope that the tender offer does not succeed and therefore do not sell.

If a majority of target shareholders tender their shares, the acquiror either waits for the next annual meeting or, if the target's charter permits, calls a special meeting to replace the target board with new directors who are favor the acquisition. The new board then proposes to the remaining minority shareholders (those who did not initially sell to the acquiror) that they approve a transaction in which the minority shareholders will receive cash for their shares. This is called a "back-end merger" (or sometimes a "freeze-out" or "cash-out" merger). Under state law, a majority of the minority shareholders approve the transaction, the result is that the acquiror becomes the sole shareholder of the target. Some firms' charters require a supermajority vote for a merger, however, in which case the requisite supermajority of the minority is needed.

2. *Takeover Defenses*

Takeover defenses of various sorts are designed to obstruct this process—at either the tender offer, the proxy contest or the back-end merger stage. Because they were developed at various times over the past few decades, some defenses have rendered others obsolete. This is one source of misunderstanding in the empirical corporate governance literature.

2.1 Poison pill.

The poison pill, formally known as a "shareholder rights plan," was developed by takeover defense lawyers in the 1980s. In 1985, the Delaware Supreme Court upheld the pill's legal validity. Within [a few years,] other states also upheld the use of a pill, either by statute or court decision. Once validated, the pill became the core element of any system of takeover defenses that a company erects. It also renders irrelevant many other defenses. It can be adopted by a company's board at any time, with no shareholder involvement. Some companies have pills in place all the time, just in case a bid is made. Others adopt a pill once a bid is made. Either approach is legally permissible. One point is certain, however. Once a bid is made, the target will adopt a pill. In effect, therefore, one should think of *all* companies as having poison pills. Sometimes the term "shadow pill" is used when a company has not yet adopted a pill, since at any moment its board can—and will—adopt one.

A poison pill stands in the way of a tender offer, preventing it from proceeding. The pill's Rube Goldberg details are unimportant, but the basic mechanism is to dramatically dilute a would-be acquiror if the acquiror's total shareholding in the target crosses a specified percentage of the target's shares—for example, 20% of outstanding shares. If a tender offer were to succeed with the acquiror purchasing, say, 60% of the target's shares, that shareholding would be instantly diluted to a fraction of 60% (with no rebate of the amount the acquiror paid). No acquiror will proceed with a tender offer if the target has a well constructed pill in place. The target board, however, can disable a pill at any time. While the pill is in place, the target board may try to negotiate a better deal with the acquiror, it may look for another party that will offer a better deal, or it may "just say no" and remain independent.

In response to a target board that will not disable a pill, the acquiror has just one response available. It can ask the shareholders of the target to replace their board with directors who are expected to view the offer more favorably—namely, individuals whom the acquiror selects and puts up for election. The process by which an acquiror puts up a slate of candidates in a board election is called a proxy contest. The acquiror's expectation and that of the target management, is that if the acquiror's candidates win the election, they will disable the target's pill and allow the acquisition to proceed (or equivalently they will enter into a friendly merger with the acquiror). If the target board has an annually elected board and conventional one-share-one-vote common stock, its shareholders will be able to replace their board at the next annual meeting at the latest. Depending on the presence or absence of certain charter and bylaw provisions discussed below, the proxy contest may occur in as few months.

2.2 Dual Class Stock.

A small number of companies have two classes of common stock, one with more votes per share than the other—typically, a ten-to-one ratio. The distribution of shares is typically such that management, the board, and perhaps founding shareholders hold a majority of votes. Dual class stock distributed in this manner poses a complete bar to a hostile takeover. It prevents the acquiror from winning a proxy contest to replace the target board and have the pill redeemed. Because insiders hold a majority of votes, there is no way the board they support can be displaced. Consequently, there will be no hostile acquisition. Because dual class stock has this overwhelming impact on takeover exposure, the governance indices discussed below omit companies with dual class stock from the population of firms that they evaluate—and therefore they omit dual class stock as an element of their indices.

2.3 Staggered Board.

In combination with a poison pill, a staggered board delays a hostile takeover by up to roughly two years. It too works by impeding the replacement of the target board with a new board that will disable the target's pill. Delaware and other states' corporate laws provide for a staggered board as an option that companies can adopt in their charters or bylaws in lieu of an annually elected board. A company with a staggered board has one third of its board up for election each year. As a result, a target must go through two annual meetings before a majority of directors can be replaced. This delay creates a substantial barrier to a hostile acquiror.

For a staggered board to be effective in preventing a takeover, a company's charter—not its bylaws—will ideally provide for the staggered board. This is because shareholders can amend bylaws unilaterally, but they cannot amend a charter. A charter amendment requires the approval of the board as well. If a target's staggered board is provided for in its bylaws, a hostile acquiror can orchestrate a target shareholder vote to amend the target's bylaws to eliminate the staggered board and then elect a new slate of directors that will favor the acquisition. As a second best, a firm whose bylaws, rather than its charter, provide for a staggered board will be effectively protected if the bylaws also provide that the staggered board provision can be amended only with a large supermajority vote of the shareholders—especially if insiders hold a number of shares greater than 100% minus the supermajority required.

These three defenses are essentially all that are relevant to a firm's exposure to a hostile takeover. Dual class stock prevents an acquisition indefinitely, and the two-year delay created by a staggered board poses a substantial bar. These impediments to replacing the target board are effective because—since 1985 in Delaware and somewhat later in other states—the incumbent board has been permitted to adopt a poison pill. Other defenses are either irrelevant or have a trivial impact on takeover exposure. I explain this further in the context of governance indices.

3. *Early Misunderstandings in Empirical Corporate Governance*

Misunderstandings of takeover defenses in the empirical corporate governance literature date back to the 19080s, when defenses were originally developed. These misunderstandings manifested themselves to three sets of studies: those analyzing poison pill adoption; those analyzing the adoption of antitakeover charter amendments; and those analyzing impact of state antitakeover statutes.

3.1 *Studies of Poison Pills*

Between 1986 and 1996, eleven event studies were published on the impact that the adoption of a poison pill had on share value.[1] There is an inherent problem, however, with each one of these studies. In fact, there is an inherent problem with *any* effort to measure the impact of a firm's adoption of a poison pill. As explained above, a poison pill can be adopted unilaterally at any time by a board of directors. If a firm does not have a pill today, its board can adopt one tomorrow (or later today), and it certainly will adopt one if the firm receives a bid that it does not want to accept immediately. Bebchuk and Subramanian (2002) found that among targets of hostile takeover attempts, 100% either had a pill in advance or adopted a pill once a takeover began. Thus, while a pill can surely affect the outcome of a takeover attempt, the absence of a pill at any moment does not have an impact. Consequently, the adoption of a pill is a non-event, and an event study will not measure its impact.

Not surprisingly, the results of pill-adoption event studies ranged from finding no significant abnormal returns to finding statistically significant but economically small returns, both negative and positive. The studies that found a statistically significant negative effect on share prices were those that used the earliest sample period. Looking at a large sample of firms over several years, Robert Comment and William Schwert (1995) found statistically significant negative effects of poison pill adoption only in 1984 (when nine pills were adopted). As the authors suggested, this may reflect the market's lack of understanding regarding how the pill would work. Later studies generally found no statistically significant result.

In a more recent study, Randall Heron and Erik Lie (2006) attempt to analyze the determinants of pill adoption and the effect of a pill on acquisition prices. This study runs into the same problem associated with the event studies. Since all firms can adopt a pill at any time, it does not matter whether a firm has done so at any point in time. Similarly, since any firm can adopt a pill in order to hold off a bidder while attempting to negotiate a price or to attract another bidder, the fact that some do not adopt pills simply means that the nature

1. I base this count on Coates (2000).

of the negotiation was such that they did not need to. The study design, therefore, reflects a misunderstanding of how a pill works.[2]

Danielson and Karpoff (2007), in another relatively recent study, measure the impact of pill adoption on firms' operating performance, and they find a positive impact. They justify their research design by positing, contrary to what I have said above, that until the Delaware Supreme Court explicitly approved the adoption of a pill after a hostile bid has been made—a "morning-after" pill—managers and their legal advisors did not know they could adopt a pill under such circumstances. Danielson and Karpoff base this view on John Coates's statement, in his critique of empirical studies of pills and other defenses, that *Unitrin*[3] was the first case in which the Court explicitly validated a morning-after pill. As Coates also stated, however, "[t]he Delaware Supreme Court's tacit approval of post-bid pills in *Unitrin* was so predictable it was barely mentioned in practitioner and academic commentary on the case." The logic of earlier cases had implied that the Delaware courts would not differentiate between a post-bid pill and a pill adopted earlier. Neither Coates nor I would put any weight on the *Unitrin* case in terms of changing perceptions regarding the importance of timing in the adoption of a pill.[4]

3.2 *Antitakeover Charter Provisions*

During the 1980s, firms developed a variety of charter provisions designed to impede hostile takeovers and amended their charters to include these defenses—sometimes called "shark repellant" at the time. Some of these pre-dated the pill and some were developed after the pill was validated in Delaware but before its validity was clear for firms incorporated elsewhere. Once the pill was legally validated, these antitakeover provisions had either no impact or a trivial impact on takeover vulnerability at the margin beyond the impact of a pill.

2. The authors comment on the fact that Bebchuk, Coates and Subramanian (____) "do not test the interaction effect between poison pills and staggered boards" and note as well that all of the acquisitions in their study involved poison pills. But since all firms can (and in the Bebchuk, Coats and Subramanian study did) adopt a pill, there is no reason to study the interaction of a pill and a staggered board. Or, put differently, any study of staggered boards *is* a study of staggered boards plus poison pills, whether a pill has actually been adopted or not.

3. Unitrin, Inc. v. Am. Gen. Corp., 651 A.2d 1361 (Del. 1995).

4. To confirm Coates's view, and because my goal here is to try to eliminate unnecessary ambiguity in the legal landscape, I sent him an email. He responded as follows: "Pre-*Unitrin*, a target with a pre-planned pill would have a 90% chance of having it upheld amid a takeover battle, and a target adopting a morning-after pill would have an 85% chance. After *Unitrin*, the [pre-planned] was 95% and the morning-after had a 93% chance."

Empirical studies of these defenses published in the late 1980s and 1990s suffered from three flaws. First, some used sample periods that either predated the advent of the pill in 1985 or that spanned that year. (Ambrose and Megginson (1992), Borokhovich, Brunarski and Parrino (1997), Mahoney and Mahoney (1993), McWilliams and Sen (1997).) Prior to 1985, takeover defenses, including staggered boards, did relatively little to stop a hostile takeover, but they were all target management had to make an acquisition less attractive. Using a sample period that spanned 1985 was a flawed approach because it mixed weak defenses (all antitakeover provisions prior to 1985) with irrelevant defenses (antitakeover provisions other than staggered boards after 1985).

The second problem with some of these studies, even to the extent they used post-pill sample periods, was that they combined staggered boards with other (obsolete and therefore irrelevant) defenses into a single variable for "takeover defense." (Jarrell and Poulsen (1987), McWilliams (1990), Pound (1988).) Some of these studies could have isolated the effect of staggered boards for years after 1985, but they did not. This was a lost opportunity.

A third flawed approach, which was a predecessor of the use of governance indices, was to count the number of defenses that a firm had in its charter. Field and Karpoff (2002) [others—to be expanded]. This methodology was flawed because more defenses does not mean more insulation from the hostile takeover threat. One defense—a staggered board or dual class stock—is all that is need. Other defenses, no matter how numerous, would be weaker than either of these two defenses. Moreover, for firms that have a staggered board or dual class stock, additional defenses have zero impact at the margin.

The confusion in the 1980s and 1990s regarding how takeover defenses worked, and the concomitant inconsistencies in research design, resulted in conflicting results and continuing efforts to understand the conflicting results—but without understanding the defenses themselves. In recent years, as the use of pre-pill defenses has declined and staggered boards has increased, analyses of takeover defenses have focused on staggered boards. Recent articles, however, continue to refer to the conflicting results of the earlier studies as a "puzzle" that can somehow be resolved with a study today of staggered boards in the post-pill era.[5]

5. For example, Faleye (2007) refers to two studies in the 1980s and 1990s that reached opposite results. Faleye's study is one of the most illuminating of all studies of staggered boards. Nonetheless, as is evident in other studies, he misunderstands the

3.3 *State Antitakeover Statutes*

From 1982 through 1988, 34 states enacted statutes intended to protect target firms from hostile takeovers. These statutes were enacted in response to lobbying by managers, usually in the heat of a particular in-state takeover effort (Romano ____). The statutes were often identical to what some firms had been adding to their charters individually. Enacting a statute had the effect of putting these provisions into the charters of all firms incorporated in a particular state.

Like anti-takeover charter amendments, these statutes attracted a considerable amount of empirical analysis, and like studies of charter amendments, these studies were generally flawed. (Karpoff and Malatesta (1989), [Others].) With few exceptions, state antitakeover statutes were dominated by the poison pill and therefore became irrelevant once the pill was developed and legally validated in any particular state. Since there was no certainty that a state court would accept a poison pill, some statutes may have had an impact for a few years for firms incorporated outside of Delaware, when the legal validity of the pill was uncertain, but at some point not long after the Delaware Supreme Court endorsed the pill in 1985 the pill was universally recognized as permissible. In any case, the studies at this time did not focus on non-Delaware companies during periods in which the validity of the pill was unclear under their applicable state law.

4. *Governance Indices*

Over the past decade, the empirical corporate governance literature has relied heavily on governance indices as measures of governance quality. The construction and use of these indices reflect a continuing misunderstanding among economists of takeover defenses and other governance mechanisms. The G Index, one of the two most commonly used indices, was developed by Paul Gompers, Joy Ishii and Andrew Metrick ("GIM") (2003). It is comprised of 24 elements intended to measure "the balance of power between shareholders and managers" which the authors explain in terms of the ease with which shareholders can

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operation of a staggered board in combination with other governance mechanisms. He refers to a "blending" of two annual meetings with "ability to dilute the holdings of an unwanted bidder." I have described above how staggered boards and poison pills interact. They do not "blend." He refers to a combination of a staggered board with limits on the power of shareholders to call special meetings or to vote by written consent. No such combination exists; staggered boards require votes at annual meetings. He also tests for an association between staggered boards and state antitakeover statutes. For reasons explained here, such associations are not relevant to the ability of a target board to resist a hostile takeover.

replace directors.[6] For each element present in a firm, the firm gets one point, so the range of possible scores on the Index is zero to 24. The authors and those who use the G Index understand the elements to cause management entrenchment by warding off hostile acquirors. Management of a firm with a high score on the Index is considered to be more entrenched, and management of a firm with a low score is considered less entrenched.

It is implausible, however, that the presence of a larger number of G Index elements in a firm *causes* management of the firm to be more entrenched. Most elements of the G Index fit one of the following descriptions: (a) They have no impact on management entrenchment; (b) they have no relevance to entrenchment and in fact have an affirmatively beneficial impact on governance in other respects; (c) they have no impact on entrenchment if a firm has an effective staggered board; and (d) they have no impact on entrenchment only under limited circumstances. I provide examples of these problems below.

GIM find that firms with scores in the highest decile of their index (the "Democracy Portfolio") were valued higher and outperformed firms in the lowest decile (the "Dictatorship Portfolio") from 1990 to 1999. It is reasonable to try to understand why GIM get these results. Unfortunately, I do not have an explanation. But

6 The G Index includes the following elements:
- Blank check preferred stock
- Staggered board
- Shareholders' ability to call a special meeting
- Shareholder voting by written consent
- Change in control provision in executive compensation plan
- Indemnification agreements with with officers and directors
- Indemnification of officers and directors in bylaws
- Exculpation of outside directors for violations of the duty of care (e.g. under DGCL Section 102(b)(7))
- Executive severance agreements not contingent on change of control
- Restrictions, such as supermajority vote requirement, on bylaw amendments by shareholders
- Restrictions, such as supermajority vote requirement, on charter amendments by shareholders
- Absence of cumulative voting
- Confidential voting by shareholders
- Supermajority shareholder vote required for mergers
- Unequal voting based on duration of shareholding (not dual class stock)
- Antigreenmail charter provision or applicable state statute
- Nonshareholder constituency charter provision or applicable state statute
- Fair price charter provision or applicable state statute
- Pension parachute
- Poison pill
- Silver parachute
- Business combination statute applies
- Cash-out statute applies
- Control share acquisition statute applies

the absence of an alternative explanation cannot be a basis for concluding that the Index is actually measuring entrenchment when few elements of the Index have the potential to entrench.

4.1 *Elements with No Impact on Management Entrenchment*

One element of the G Index is a firm's adoption of a poison pill. As explained above, the presence or absence of a pill at any particular time has no impact on a firm's ability to defend against a takeover. A company's board can adopt a pill unilaterally at any time, and it *will* adopt a pill in the face of a hostile takeover bid. Therefore, in effect, all firms have a poison pill at all times. The presence of a poison pill, therefore, should not be an element of a governance index.

A related element of the G Index is the authorization in a company's charter of blank check preferred stock. Blank check preferred stock is typically used to create a poison pill, but it is not necessary to create a pill. Therefore, the fact that a company has authorized blank check preferred stock has no impact on management entrenchment. Furthermore, since most firms with poison pills do have blank check preferred stock, a poison pill in effect provides two Index points—for no impact on entrenchment. Therefore, neither poison pill nor blank check preferred stock should be in the Index.

In addition, the G Index includes each of the following takeover defenses, which can appear either in firm's charter or in the law of the state in which the firm is incorporated:

- Business combination statute
- Fair price statute or charter provision
- Control share acquisition statute
- Cash-out statute

Since the advent of the poison pill, none of these four elements has an impact on a firm's exposure to a hostile takeover. Viewed in isolation, they would impose costs on an acquiror that carries out a hostile acquisition. But a pill already imposes a prohibitive cost on an acquiror that goes forward with an acquisition. Like a pill, these defenses can be neutralized by the target board—either the incumbent board of a board that is elected as a result of a proxy contest by the acquiror. So these provisions operate exactly as a pill operates. They defenses can be viewed as lesser pills because the consequences they threaten to impose on an acquiror are not as severe as the consequences imposed by a bill. But even if the costs they would impose were also prohibitive, they would still have no impact at the margin. Twice prohibitive is just prohibitive.

The inclusion of these elements in the G Index reflects the same misunderstanding that led economists to count defenses in the 1980s and 1990s. Not only does the addition of a defense add no protection at the margin, but a firm could be assigned four points for having all four of these defenses.

Another element of the G Index that has no impact on takeover exposure is a requirement of a supermajority shareholder vote to amend a firm's charter. Perhaps the idea behind this element is that if a firm as a staggered board provided for in its charter, then an acquiror would ideally want the target shareholders to amend their charter to drop the staggered board. But this is not possible. A charter can be amended only with the approval of a firm's board of directors (which then must be followed by an approval of the shareholders as well). Consequently, a target board has control of the charter regardless of whether a majority or supermajority shareholder vote would be needed when they initiate an amendment.

4.2 *Elements that Are Unrelated to Entrenchment and Affirmatively Good for Corporate Governance*

The G Index contains several elements that are entirely unrelated to entrenchment and that are widely understood to be beneficial from a governance standpoint. These include director indemnification provided for in bylaws, director indemnification provided by agreement, and protection of outside directors from monetary liability for violation of the duty of care. These provisions protect either management or the board from liability, primarily in suits brought by plaintiffs' lawyers on behalf of shareholders or the corporation. All of these protections have exceptions for actions that directors or officers take in bad faith. They are thus not licenses to steal or to shirk. It is widely agreed that directors and officers should be protected from the expense of shareholder lawsuits, even if this protection occasionally extends to individuals who have engaged in misconduct. Without such protection, it would be difficult to attract outside directors, and perhaps even top-level officers, to public companies, and those who are attracted would take few risks, regardless of the rewards to shareholders. These protections, therefore, have no place in a governance index.

4.3 *Elements With No Impact On Firms With an Effective Staggered Board*

As explained above, the most important takeover defense other than dual class stock (which is omitted from the G Index) is an effective staggered board—a staggered board provided for in a firm's charter. An effective staggered board allows a target to keep a poison pill in place for roughly two years, which has proven to be a serious impediment to a hostile takeover. There has never been a hostile acquisition of a firm with an effective staggered board where the firm kept its pill in place. Acquisitions that have occurred have ultimately been negotiated with management. Thus, for firms with staggered boards, other potential defenses included in the G Index are of essentially no consequence at the margin. In addition to the four defenses discussed above, this is true of the supermajority vote requirements to amend bylaws and to approve a merger. Whether these requirements have an impact at the margin for firms with annually elected boards seems doubtful once they adopt a poison pill. For firms with an effective staggered board, however, their marginal impact is implausible. Consequently, assigning points for these elements to firms with effective staggered boards is a mistake.

In addition, the following two elements of the G Index are irrelevant as a matter of law to a company with a staggered board: (a) the inability of shareholders to call a special meeting (due to a blanket prohibition or a high vote threshold for doing so), and (b) a prohibition on shareholders voting by written consent. These optional charter provisions come into play if an acquirer launches a proxy contest to replace a target's board. Calling a special meeting and voting by written consent are two ways a shareholder vote can occur without waiting for the target's next annual shareholder meeting. But the law governing staggered boards requires that directors be elected at annual meetings only.[7] Therefore, while these arrangements can shorten the delay before a shareholder vote can occur for a firm with an annually elected board, they are of no use in replacing a board.

4.4 *Elements With an Impact Only Under Limited Cicumstances*

Some elements of the G Index can have an impact on management entrenchment, but only if other elements are present. The clearest examples are a restriction on shareholders calling a special meeting and a prohibition on shareholder voting by written consent. As just explained, these elements come into play if a an

7.DEL. CODE ANN., tit. 8, § 141(d) (2013); MODEL BUS. CORP. ACT § 8.06 (1991). These provisions can be useful for a company with an *ineffective* staggered board, where a bylaw amendment can allow shareholders to replace the board immediately.

acquiror wants to launch a proxy contest to replace a target board. If shareholders do not have access to these means of electing a new board, an acquirer will be delayed until the target's next annual meeting, where an election of directors must occur. In order to delay a shareholder election until the next annual meeting, however, *both* restrictions must be present. Either one alone is not sufficient. Consequently, assigning one point for either provision alone is not appropriate—nor is assigning two points for having both.[8]

5. *The "E Index"*

Lucian Bebchuk, Alma Cohen and Allen Ferrell ("BCF") (2009) also conclude that most elements of the G Index have no impact on entrenchment. They find that only six elements of the G Index are responsible for GIM's econometric results and that the remaining elements are noise. BCF, however, also seem to suggest that a causal relationship exists between the presence of each of these six elements and firm value. In doing so, they make the same mistake that GIM made. BCF create a new index—an "Entrenchment" or "E" Index comprised of the following subset of the G Index:

- Poison pill
- Supermajority shareholder vote to approve a merger
- Supermajority shareholder vote for bylaw amendment
- Supermajority shareholder vote for charter amendment
- Golden parachute
- Staggered board

Like GIM, BCF find an impressive set of correlations between elements of their index and both firm value and performance. Thus, like the G Index, the E Index may be measuring something, but it is not measuring entrenchment in the sense of management's ability to resist a hostile takeover.

I have already explained why a poison pill[9] and the supermajority vote requirements above do not belong in an entrenchment index, and I have explained why an effective staggered does belong. That leaves golden

8.Note that having both provisions, which provides up to a one-year delay on a would-be acquirer gets a firm two points, but have a staggered board, which provides up to two years of delay, gets a firm only one point.

9. Not surprisingly, BCF recognize the point I make above with respect to poison pills. They nonetheless offer explanations for their finding that a poison pill is correlated with their dependent variables. One explanation is that refraining from having a pill when there is no takeover pending will score "points" with institutional investors that do not like pills. Another is that the presence or absence of a pill will convey information to would-be acquirors. These explanations do not support a distinction between firms with and without a pill on the basis of management's ability to defend against a takeover. If a firm needs a pill to stop a takeover in the heat of the battle, it will adopt one, as Bebchuk found in another study.

parachutes. A golden parachute is an agreement with the CEO and other top managers under which they will receive a substantial payment if their firm is acquired. It is designed to align the interests of managers with those of shareholders in selling the company to an acquiror willing to pay a premium price. Thus, to the extent "entrenchment" means an ability to resist a takeover, then a golden parachute does not belong. If a golden parachute is large in relation to the potential surplus available in a takeover, it could deter some takeovers at the margin, but this is unlikely except perhaps in the case of small target companies.[10] Indeed, in another paper, Bebchuk, Cohen and Wang (2012) find that golden parachutes are in fact associated with an increased likelihood of a takeover and increased premia.

On the other hand, as BCF explain, by providing cash to outgoing managers, a golden parachute "provides incumbents with substantial insulation from the economic costs they would otherwise bear as a result of losing their control." So, while golden parachutes are not entrenching, they may reduce share value. There is a further question, however, with respect to the impact of a golden parachute on firm value. Like a poison pill, a golden parachute can be adopted by a company's board unilaterally at any time. A firm that does not have one today can adopt one tomorrow, or at a time when an acquisition is imminent—though unlike a pill, a firm will not necessarily adopt a golden parachute. So while the presence of a golden parachute (which is unlikely to be rescinded) may affect firm value, the absence of a golden parachute at any particular time may not be reflected in firm value. Bebchuk, Cohen and Wang (2012) nonetheless find that firms with golden parachutes have lower value than firms without.

There are thus two elements in the E Index that we can expect to influence firm value directly: a staggered board and a golden parachute. The two provisions have opposite effects on the exposure of a company to a hostile takeover. A staggered board deters takeovers and a golden parachute encourages them. Both, however, reduce the disciplinary effect of the takeover threat. So long as this is what is intended to be measured—as opposed to takeover exposure—there is no problem including these two elements in a governance index. But since these are the only two elements that can have a causal relationship with takeover exposure, they should be used as separate independent variables. There is no need to combine them in an index.

10 In this respect, golden parachutes fall into the category above for index elements whose impact depends on factors outside the index.

6. *Use of Governance Indices in Corporate Governance Research*

Consistent with the analysis above, Core, Guay and Rusticus (2006) find that the relationship between the G Index score and stock market performance is not causal. Also consistent with the above, and Bates, Becher and Lemmon (2008) find that four of the E Index factors have no statistically significant relationship with bid deterrence, and that golden parachutes are positively related to the receipt of a bid. Nonetheless, the G and E Indices continue to be widely used as all-weather, all-purpose measures of either takeover exposure or or governance quality generally. Among economists that have used these indices, misunderstandings are rampant. Studies commonly refer to all 24 elements of the G Index as "takeover defenses," and they assume that the number of takeover defenses is a relevant measure of exposure to takeovers.[11]

Villalonga and Amit (2006), for example, uses the G Index in the context of studying family firms. They describe the Index as counting the "number of governance provisions in a firm's charter, bylaws or SEC filings that reduce shareholders' rights." They further misdescribe the Index as an indicator of "minority shareholders' risk of expropriation." Bates, Becher and Lemmon (2008) also misunderstand the G Index. Controlling for staggered boards, they find that the remaining elements of the G Index has a positive and statistically significant effect on the incidence of a takeover bid. They interpret this finding as indicating that, controlling for staggered boards, "firms with more anti-takeover provisions are more likely to receive a takeover bid." This interpretation reflects a misunderstanding of the G Index elements and will lead to yet further misinterpretations as researchers try to discover why "anti-takeover provisions" attract takeover bids. These misunderstandings are just a few examples of a widespread phenomenon.

[More examples to follow]

11 For example, Masulis, Wang and Xie (2009), Bates, Becher and Lemmon (2006)