
When Do Governance Mechanisms Matter Most?

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We examine the interaction of internal and external firm-level governance mechanisms with industry-specific economic conditions to assess when they best serve current shareholders. We find that external governance (shareholder rights) is most valuable during industry upturns, with no differential benefit during downturns. For internal governance, we find that small boards are incrementally more valuable during upturns but that this result weakens/reverses during downturns, and there is inconclusive evidence regarding the state dependent value of institutional ownership. Contributions include showing: governance mechanisms have industry economic state dependent values; small boards may not always be optimal; and managers do not capture these inefficiencies through aggressive policy decisions, nor excessive compensation.

Keywords: Corporate governance; board of directors; institutional ownership; shareholder rights.

1. Introduction

Understanding the separation of ownership and control in the context of the modern firm has been a widely studied area in the economics and finance literature. Classic papers such as [Jensen and Meckling \(1976\)](#), [Demsetz \(1983\)](#), and [Fama and Jensen \(1983\)](#) provide the foundational insight for

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studying the principal-agent problems that arise from having a firm structure where diverse shareholders (principal) employ a self-interested manager (agent) to engage in actions that maximize the utility of the principal. It is this exact problem that has prompted many researchers to look for solutions. While prior literature has focused on how shareholders can curtail agency problems by aligning the incentives of managers (Holmstrom, 1979; Murphy, 1986), engaging the help of other stakeholders (Rajan and Winton, 1995), and various firm-level governance mechanisms (Shleifer and Vishny, 1986; Acharya *et al.*, 2011), our study takes a step back from the firm and explores the interaction of industry-level economic conditions with firm governance mechanisms to shed light on the value of governance mechanisms to current shareholders.

In this study, we extend the current literature on firm-level governance mechanisms to answer the question, under what industry-level economic conditions do existing governance mechanisms function best to serve the interests of current shareholders? In other words, when do governance mechanisms matter most? We examine both internal and external governance mechanisms to study the cross-sectional variation in future firm performance and future firm valuations conditional on industry economic conditions. We find evidence that shareholder rights, or the market for corporate control (an external governance mechanism), is most valuable to current shareholders during industry economic upturns, but exhibits no differential benefit during industry economic downturns. Second, we find that internal governance mechanisms (board size and institutional ownership) do not have the same implications for firm value over economic states. For board size, we find that small boards are incrementally more valuable to current shareholders during industry economic upturns. However, this result weakens/reverses during industry economic downturns. Using several alternative definitions for institutional ownership, we ultimately find inconclusive evidence in support of institutional ownership having industry economic state dependent valuations. Our findings contribute to the governance literature by (i) providing initial evidence that both internal and external firm-level governance mechanisms have industry economic state dependent values; (ii) providing evidence that small boards may not always be optimal; (iii) showing that managers do not capitalize on these governance inefficiencies over economic states by making aggressive policy decisions, nor by extracting rents through excessive compensation.

The classic literature on monitoring managers models a principal-agent problem where economic conditions, which are considered exogenous, are not

relevant to monitoring or incentive-aligning the manager with shareholders (Holmstrom, 1979). However, a more recent line of empirical literature has documented that underlying economic conditions may alter the efficacy of firm governance and internal monitoring. For instance, Jenter and Kanaan (2015) show managers are significantly more likely to be dismissed following purely bad industry-level performance. A decline in industry performance from the 90th to 10th percentile is associated with a 50% increase in the probability of dismissal. In contrast, Bertrand and Mullainathan (2001) provide evidence that CEOs are rewarded through greater compensation based on luck or other factors beyond their control. These findings imply that inefficiencies in relative performance evaluation could impact the monitoring intensity of managers depending on the current economic state. And, in fact, it may be necessary to consider economic conditions and firm-level governance mechanisms jointly to fully define the agency costs present in the firm.

Building upon the idea that organizational and managerial slack may change over economic states, we examine how industry-specific economic conditions affect the underlying value of a firm’s internal and external governance metrics.¹ We draw upon existing theory and empirical findings to construct two hypotheses regarding when a particular governance feature inherent to the firm is most needed to constrain the self-interested actions of management and reduce agency costs. The hypotheses (discussed in detail in Sec. 2) isolate a particular governance mechanism to address the question of whether the governance feature adds incrementally more value to the firm during good economic conditions (pro-cyclical), bad economic conditions (counter-cyclical), or has the same value over economic states.

We measure firm and industry performance using valuation levels (market-to-book: MtB) and operating performance (return on assets: ROA). We rank industry-specific conditions (MtB, ROA) over the span of the sample period (1992–2010) and categorize industry-years where median performance in the industry is at the 75th percentile or higher, as compared to all other industry-years, as an industry upturn year. Industry-years where median performance in the industry is at the 25th percentile or lower is categorized as an industry downturn year. Classifying industry upturns/downturns using ROA and MtB gives us two distinct looks at the level of constraint which managers face in a given industry at a given point in time — one where the industry economic state is defined by operating

¹Similar to Cremers and Nair (2005), we classify governance mechanisms aimed at monitoring the actions of managers as either being an external governance mechanism or an internal governance mechanism.

performance (ROA) and the other where the industry economic state is defined by valuation levels (MtB). We use shareholder rights (GIndex) as our measure of external governance, and board size and institutional ownership as our measures of internal governance.² We then compare the interaction between these firm-level governance mechanisms and industry economic states to discern the pro-cyclical, counter-cyclical and neutral nature of these firm-level mechanisms.

Our first salient finding is that our external governance measure, shareholder rights (lack of antitakeover protection), exhibits pro-cyclical value. Across industry-specific valuation and operating performance (MtB, ROA) states, shareholder rights have significant value in economic upturns. Yet, performance differences between firms with strong antitakeover protection and weak antitakeover protection do not manifest in industry economic downturns. This finding is economically meaningful as a shift in operating performance (valuation) between firms with strong shareholder rights and weak shareholder rights over economic states (upturns minus downturns) is 35.9% (21.4%) of the average firm's operating performance (valuation) in our sample.³

This finding, that shareholder rights has pro-cyclical value, adds to the current governance literature by extending our understanding of the operational strength of antitakeover protection by showing that it is during industry-economic upturns when managers can insulate themselves from the market for corporate control. Core, Guay and Rusticus (2006) and Gompers *et al.* (2003) find that firms with weak shareholder rights exhibit significant operating underperformance. [Cremers and Ferrell \(2014\)](#) also find that antitakeover protection is negatively related to valuation levels (as measured by Tobin's Q). Our finding extends these prior results by establishing that antitakeover protection (i.e. a lack of shareholder rights) is primarily value destroying in industry upturns, when the bargaining position within the firm is tilted toward management. In industry downturns, antitakeover provisions do not yield significant value in terms of protecting management from dismissal, and hence we see no valuation (operating performance) differences

²Since our governance mechanisms of interest are highly stationary (within-industry), we are able to rule out reverse causality (i.e. that performance drives the implementation of or shift in governance features within the firm). Additional stationarity robustness checks are discussed and implemented in later sections.

³In industry upturns, the operating performance (valuation) difference between firms with strong shareholder rights and those with weak shareholder rights is 0.023 (0.509), or 16.5% (25.1%) of the average firm's operating performance (valuation) in our sample. In downturns, this difference in operating performance (valuation) is -0.027 (0.073), or -19.4% (3.6%), leading to a state dependent difference of 35.9% (21.4%) of the average firm's operating performance (valuation) in our sample.

between firms with antitakeover protection and those without antitakeover protection.⁴

Next, we test our hypothesis that internal governance mechanisms have counter-cyclical value. This leads to our second finding that board size (one measure of internal governance) exhibits counter-cyclical value. Firms with small boards have incrementally more value during industry upturns, yet this performance relationship weakens/reverses when firms enter a downturn. Considering industry economic conditions defined by operating performance, we actually observe large boards doing significantly better than their small board counterparts when in an industry downturn. The economic magnitude of this shift in operating performance (valuation) between firms with large boards and those with small boards over economic states (downturns minus upturns) is 29.7% (8.5%) of the average firm's operating performance (valuation) in our sample.⁵ However, when we measure a different dimension of internal governance via various proxies for institutional ownership, we find no conclusive evidence to support our hypothesis that institutional ownership has counter-cyclical value, pointing to the idea that not all internal governance mechanisms have industry economic state dependent value.

The finding that board size has counter-cyclical value augments our understanding of board structure in two ways. First, the operating underperformance of small boards in economic downturns further challenges the standard notion of small board optimality (Yermack, 1996), and adds to recent literature which demonstrates that large boards may be needed in certain firm environments (Boone *et al.*, 2007; Coles *et al.*, 2008). Second, the result lends greater insight into the determinants of optimal board structure. Our finding highlights that it is during industry upturns when the extra monitoring ability of additional members on a board might be insufficient to justify the costs of free-riding (moral hazard) which comes with additional board members.⁶

⁴In a current working paper, Kadyrzhanova and Rhodes-Kropf (2014) find consistent evidence with our finding that shareholder rights has pro-cyclical value, by showing that the importance of external governance increases with firm overvaluation but does not decrease with firm undervaluation.

⁵In industry upturns the operating performance (valuation) difference between firms with large boards and those with small boards is -0.007 (-0.2469), or -5.5% (-12.1%) of the average firm's operating performance (valuation). In downturns, this difference in operating performance (valuation) is 0.034 (-0.074), or 24.3% (-3.6%) leading to a state dependent difference of 29.7% (8.5%) of the average firm's operating performance (valuation) in our sample.

⁶See Raheja (2005) and Harris and Raviv (2008) for a breakdown on the trade-offs inherent in the design of an optimal board.

Using our findings that shareholder rights has pro-cyclical value and board size has counter-cyclical value, we investigate how these governance inefficiencies relate to managerial decision making. Specifically, we examine how the interaction between governance mechanisms and industry-specific conditions relate to firm policy decisions (asset growth, property plant & equipment (PPE) growth, acquisitions, and various expenditures) and compensation. We do not find evidence that the destruction in firm value is associated with aggressive managerial decisions (acquisitions) as would be predicted by the theory of “empire-building” (Jensen, 1986). Also, we find no evidence of managers exploiting the governance-state inefficiencies through rent-extraction in the form of excess compensation. Instead, our findings seem most consistent with the “quiet life” story posited by Bertrand and Mullainathan (2003). The underperformance associated with each governance-state supports the idea that managers implement safe firm policy decisions as opposed to aggressive policy decisions.

Our empirical findings contribute to the corporate governance literature in three meaningful ways. First, we extend the literature on firm-level governance mechanisms to show how firm-level governance mechanisms and industry-level economic conditions interact to define the aggregate governance standards present in the firm. Second, we provide new insight on when and how firm-level governance mechanisms operate most effectively to diminish agency problems. Finally, we document that the association between managerial opportunism and governance over economic states is not consistent with managers destroying value through aggressive decisions when governance inefficiencies persist.

The paper proceeds as follows: Section 2 presents the development of the hypotheses, data construction and summary statistics. Section 3 presents the empirical methodology, results, and robustness checks. Section 4 concludes the paper.

2. Hypothesis Development, Data, and Summary Statistics

2.1. Development of hypotheses

This empirical investigation addresses how industry-specific economic conditions affect the underlying value of existing firm-level governance metrics. To understand how governance mechanisms and industry-specific economic conditions interact to bind or constrain the actions of the self-interested manager, we first introduce some new terminology. We define governance mechanisms that strengthen (bind) as economic conditions improve, and

weaken (provide slack) as economic conditions deteriorate, as exhibiting pro-cyclical value. In other words, the firm-level mechanism has incrementally more value and operates most effectively to constrain managerial actions in economic upturns. In industry economic downturns, the deteriorating market restricts managers' actions and the firm-level mechanism is not needed to constrain the decisions of management. Counter to this, we define firm-level mechanisms that strengthen as economic conditions worsen, and weaken as economic conditions improve, as having counter-cyclical value. Such a situation implies that the firm-level mechanism is working in tandem with the constraint of market conditions to abate agency problems during economic downturns while providing additional managerial slack during economic upturns. Finally, if a governance mechanism has static value across economic conditions, then the mechanism has neutral value over economic states.

We adopt the governance classification of [Cremers and Nair \(2005\)](#), and categorize governance mechanisms as either being external or internal to the firm.⁷ We draw on the classic theories of [Manne \(1965\)](#), [Alchian and Demsetz \(1972\)](#), [Jensen and Meckling \(1976\)](#), and [Fama \(1980\)](#) to motivate the important monitoring role of external and internal governance mechanisms, and rely on existing empirical findings to provide support for our specific predictions regarding the pro-cyclical or counter-cyclical value of external and internal governance mechanisms. First, we discuss external governance and why we predict that it will have pro-cyclical value with respect to industry-economic states. Subsequently, we lay out our reasoning for why we expect internal governance to have counter-cyclical value.

2.1.1. *External governance: Shareholder rights and the market for corporate control*

External governance embodies the constraint (monitoring) placed on managers by the market for corporate control, or as [Fama and Jensen \(1983, p. 313\)](#) state, "... the rights ... to hire, fire, and set the compensation of the top level decision managers." The classic work of [Manne \(1965\)](#) introduces the idea that the market for corporate control acts as a disciplining mechanism to current managers by outside takeovers. [Fama \(1980\)](#) expands on this point, noting that the mere existence of an outside market for corporate control can help curb the actions of managers.⁸ While a takeover may be an expensive

⁷[Cremers and Nair \(2005\)](#) classify the market for corporate control as the primary external governance mechanism, and large shareholders as the primary internal governance mechanism. To their classification, we also add board of directors as another primary internal governance mechanism.

⁸[Scharfstein \(1988\)](#) formalizes these earlier ideas by modeling when the market for corporate control plays a disciplinary role.

mechanism for monitoring the actions of a manager, [Jensen and Ruback's \(1983\)](#) early survey of the literature finds, that on average, takeovers benefit target firms' shareholders, pointing to the takeover market as a viable monitoring mechanism.

However, if a firm (either the board of directors and/or top managers) wants to protect itself from a takeover, there are strategies such as adopting direct antitakeover provisions, entrenching the CEO, and restricting shareholders from altering the charter or bylaws of a firm, to deter/avoid takeovers. Prior studies such as [Coates *et al.* \(2002\)](#), [Bebchuk and Cohen \(2005\)](#), and [Daines and Klausner \(2001\)](#) investigate the issue of delay tactics and highlight how truly effective staggered boards are as a takeover defense. [Daines \(2001\)](#) validates how state law plays a role in governance by establishing that Delaware law renders a firm more accessible to takeovers, while [Gompers *et al.* \(2003\)](#) develop and use a comprehensive measure of anti-takeover protection (GIndex) and find evidence consistent with weak shareholder rights leading to higher agency costs within the firm.

To proxy for the market for corporate control, we use the [Gompers *et al.* \(2003\)](#) GIndex to capture the extent to which a firm has strong shareholder rights (low GIndex) and thus is more susceptible to takeovers, or weak shareholder rights (high GIndex), providing the firm with insulation against takeovers. The GIndex is based on 24 indicators of firm-level takeover provisions (shareholder rights) taken from the IRRC database. These 24 provisions of antitakeover protection can be assembled into five categories — voting rights, director/officer protection, delaying hostile acquirers, state laws and other defense mechanisms.⁹

It is important to note that past studies have demonstrated that shareholder rights, and the GIndex in particular, have a material impact on the fundamentals of the firm. [Gompers *et al.* \(2003\)](#) find that firms with weak shareholder rights (high GIndex) exhibit significant stock market underperformance. Following this, [Core *et al.* \(2006\)](#) document that antitakeover provisions are negatively related to operating performance, and [Cremers and Ferrell \(2014\)](#) demonstrate that high GIndex firms are associated with lower Tobin's Q. In addition, [Masulis *et al.* \(2007\)](#) establish that managers at firms protected by more antitakeover provisions are less subject to the disciplinary power of the market and thus are more likely to make value destroying acquisitions. To sum up, past empirical work demonstrates that antitakeover provisions (GIndex) affect operating performance, valuation, and firm decisions.

⁹A detailed description of the 24 components can be found in [Gompers *et al.* \(2003\)](#).

In the context of this study, if antitakeover provisions serve as an insulating device which protect the CEO from the market for corporate control, then they most likely aid him in protecting his job when his bargaining power (with respect to shareholders and the board) is greatest. If the bargaining position of the CEO is strongest when the industry is in an upturn (Jenter and Kanaan, 2015), then he will be better able to use or implement the antitakeover provisions at his disposal should a takeover attempt become real. In other words, strong shareholder rights should be more valuable to shareholders in upturns, the same state of the world where the manager has relatively more bargaining power to consume private benefits.

To expand on this point, consider the three takeover provisions which have been studied the most in the context of delaying/thwarting takeovers: staggered boards, poison pills and super-majority provisions. Each of these provisions should have state-dependent value. First, staggered boards are only effective as an insulating device if the board members are willing to side with the CEO in the event of a takeover attempt. Second, we often neglect to consider that the implementation control rights to most poison pill provisions are held by the board and not by the CEO. Hence, if the CEO desires to deflect a takeover attempt, he needs to convince board members that he is the correct individual to hold the executive position. Third, super-majority provisions are more likely to be breached if the CEO does not have the confidence of institutional investors. To sum up, antitakeover provisions offer little protection to a CEO if board members and shareholders are likely to dissent from a CEO's efforts to hold up a takeover attempt (i.e. downturn), thus negating the value that these provisions hold. This leads to our first hypothesis (stated in alternative form):

H1: External governance has pro-cyclical value.

This hypothesis leads to our prediction that strong shareholder rights plans (external governance or low GIndex) will have incrementally more value than weak shareholder rights (high GIndex) during industry upturns, as compared to industry downturns.

Alternatively, we arrive at an equivalent hypothesis if we consider the varying constraints of the takeover market. If the market for corporate control is more active in industry upturns and disappears during downturns, then the value of stronger shareholder rights will be greater in an upturn. In other words, if there are absolutely no takeover attempts in downturns, then it does not matter whether a firm has antitakeover protection or not since no

attempts will be made to acquire the firm. In which case we would see no valuation difference between firms in downturns. However, in upturns, when there is an active takeover market, we would see firms with strong shareholder rights (low GIndex) outperforming those with weak shareholder rights (high GIndex).

While there is ample evidence that merger activity is highly correlated with industry economic conditions (Rhodes-Kropf and Viswanathan, 2004), it is not clear whether these takeover attempts are hostile and against the wishes of the target company.¹⁰ In fact, these mergers may be primarily friendly and mutually agreed upon by both parties, and therefore takeover protection should not affect merger outcomes or firm valuation. In other words, observing an increase in merger activity does not necessarily imply that the market for corporate control (in a hostile sense) is stronger. It may in fact be the case that even when we observe no takeovers being initiated that the market for corporate control is strongest — the threat of a takeover is keeping all management in-line even though we, as researchers, cannot observe it. Whatever the exact reasoning, each of these elements noted above (i.e. the rise in merger activity in upturns and the increase in CEO bargaining position during upturns) yield an equivalent first hypothesis.

2.1.2. *Internal governance: Board size and institutional ownership*

Contrary to external governance, which captures the outside takeover market's disciplinary role on managers, internal governance focuses on the monitoring ability of residual claimants (current shareholders) and those elected to monitor (the board of directors). Jensen and Meckling (1976) and Alchian and Demsetz (1972) pioneer the literature in thinking about the role of shareholders in monitoring and constraining a self-interested manager to limit the expropriation of wealth. Fama (1980) views the board of directors as the "ultimate internal monitor" and notes that internal monitoring is a lower cost mechanism than provided by the outside takeover market.¹¹ The board of directors and shareholders serve an active monitoring role, collecting

¹⁰In addition, it is not so clear how the strength of the market for corporate control fluctuates over industry ROA levels. Since raiders and activists are solely concerned with finding under-priced targets, it is not certain whether there is a higher concentration of such targets in poor performing industries or well performing industries (as measured by operating performance). For instance, Brav *et al.* (2008) find that hedge funds target low MtB firms, profitable firms, and firms with higher CEO pay.

¹¹Cornelli *et al.* (2013) find that active monitoring by boards with large shareholders does improve firm performance, stressing the importance of monitors collecting non-verifiable information about managers to help inform their decision making.

information about firm operations and managerial ability with the capability of replacing the manager if firm value is not maximized (Tirole, 2001). However, while both shareholders and the board of directors have incentives to monitor the manager, they also have incentives to shirk on their responsibilities and free-ride off of other shareholders and board members' monitoring. Concentration of ownership and small board size are viewed as potential solutions in mitigating the agency costs of managers, while limiting the free-riding problem of monitoring the managers (Jensen and Meckling, 1976; Yermack, 1996).

What follows is the development of our second hypothesis regarding the value of internal governance (measured as board size or aggregate institutional ownership) over industry-economic states. The basis for our forthcoming second hypothesis follows from existing work regarding coordination costs amongst monitors, relative bargaining power of the CEO, and free-riding issues within groups of stakeholders, and for these reasons we focus on these two measures as our primary indicators of internal governance.

2.1.3. *Board size*

Prior literature shows that the number of directors who sit on the board has a material impact on firm valuation. Yermack (1996) highlights that large boards are inefficient governance mechanisms, suffering lower valuation and lower operating performance. Recently however, the idea that small boards are optimal has been challenged across theoretical and empirical studies. Harris and Raviv (2008) model board size as a trade-off between greater monitoring by more directors and any free-riding effects which may persist as board size increases. As firm size increases, the opportunity for the manager to consume private benefits increases, and the benefits of additional monitoring by more directors outweighs the costs of free-riding associated with this increase in board representation. Coles *et al.* (2008) and Boone *et al.* (2007) find support for this idea that more complex firms have a greater need for more directors to serve on the board.

If optimal board size with respect to effective monitoring is defined by the trade-off between extra monitoring ability and the free-riding (moral hazard) of additional members (Raheja, 2005; Harris and Raviv, 2008), it may be the case that each of these two factors determining optimal board size have state-dependent value. Consider the strength of these two forces over different economic states. During industry-specific upturns, the bargaining power between the board and the CEO is naturally tilted toward the CEO. In such a situation, the strength of additional members monitoring him will be weaker

and the incentive to shirk on board duties by directors becomes a relevant issue due to a decreased concern regarding reputational penalties for poor monitoring. Hence, the free-riding of additional members on the board should be primarily a concern in upturns and therefore small boards may be preferred to protect against free-riding problems.

Next, consider the forces at play in an economic downturn. Here, due to reputational concerns and concerns over future board appointments, any free-riding issue which may have previously been present within the board will quickly dissipate. The strength of many directors voicing their concerns on issues in this bad economic state will trump any free-riding issue. In other words, during economic downturns, the extra monitoring of additional board members outweighs any free-riding (moral hazard) problem, and hence large boards are preferred. These two dynamics should hold even after controlling for cross-sectional factors known to determine board size (i.e. firm complexity, asymmetric information, and private benefits).

2.1.4. *Institutional ownership*

While shareholders want managers to maximize firm value and therefore desire monitoring of self-interested managers, diffused ownership provides incentives for shareholders to shirk on their monitoring duties (Demsetz and Lehn, 1985). Shleifer and Vishny (1986) note that shareholders need to have enough “skin in the game” in order to fulfill their monitoring role. Significant ownership positions by institutional investors provide closer monitoring of the manager and reduces the extent of manager opportunism.¹² Further, prior literature shows that large institutional holders and institutions as an aggregative group have a strong incentive to monitor the firm and can affect managerial decisions (Denis *et al.*, 1997; Hartzell and Starks, 2003; Parrino *et al.*, 2003).

If aggregative groups of institutional investors face similar dynamics to boards in terms of how they operate efficiently, then we would expect to see similar shifts in the value of institutional ownership over economic states. Namely, large groups of institutional investors may act in a similar manner to large boards. A large aggregative group will face significant coordination costs when the bargaining position of the CEO is strong (i.e. upturns). When times are good, institutional owners will shirk on their monitoring responsibilities and free-riding amongst the group will prevail. Yet, if the situation

¹²See Shleifer and Vishny (1986) for a discussion on the theoretical evidence relating the block ownership of investors to corporate governance.

reverses and the firm enters an industry downturn, any free-riding issue should quickly disappear and the pressure which a large group of investors can place on a CEO should be significant and value enhancing. Large aggregate blocks of institutional investors work most effectively to put pressure on boards and management in economic downturns, while the payoff to coordination and the costs associated with it diminish their effectiveness in upturns.

The preceding discussion on board size and aggregate institutional ownership (our measures of internal governance) leads to our second hypothesis (stated in alternative form):

H2: Internal governance has counter-cyclical value.

Our second hypothesis provides consistent predictions about internal governance mechanisms regardless of whether we measure internal monitoring using board size or aggregate (total) institutional ownership. In either case, we expect large boards (large groups of institutional investors) to have incrementally more value than small boards (small groups of institutional investors) during industry downturns, as compared to industry upturns.

2.2. Industry economic states: Return on assets and market-to-book

Economic factors outside a manager's control can dictate the rewards received and can also serve as a constraint that binds his actions. [Jenter and Kanaan \(2015\)](#) document that a decline in industry performance from the 90th to 10th percentile is associated with a 50% increase in the probability of dismissal. On the positive end of the spectrum, [Bertrand and Mullainathan \(2001\)](#) demonstrate that CEOs are rewarded for factors outside their control (luck). These results supplement the body of work which highlights the scarce evidence for relative performance evaluation; managers are punished for declines outside their control (bad industry performance) and rewarded for positive shocks outside their control. Further, changes in economic conditions may also shift the decision making power present in the firm. [Jensen \(2005\)](#) notes that high valuation levels increase managerial discretion. Together, organizational and managerial slack may vary over economic states, conditional on the other mechanisms present in the firm.¹³

¹³ [Giroud and Mueller \(2010\)](#) highlight how managerial slack, through competition present in a firm's industry (Herfindahl index), affects performance. Firms in non-competitive industries (those with significant slack) are affected by the passage of business combination laws, while those in competitive industries are not (i.e. competition mitigates managerial slack).

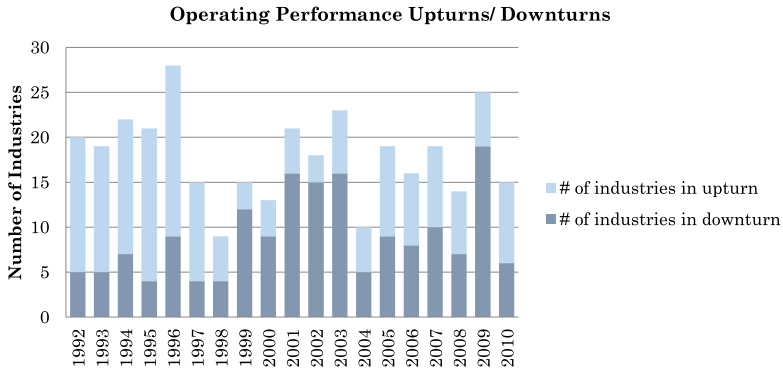
To measure industry-specific economic conditions, we use firm operating performance (ROA) and market valuation (MtB). The median level firm measure (ROA, MtB) is ranked for each industry across the span of our sample period from 1992–2010. The median firm in each industry-year is taken from the full universe of the COMPUSTAT database to define that industry-year’s economic state, where industries are defined by the FF48 industry classification (excluding financials and utilities).¹⁴ Industry-years in the top quartile are denoted as “Industry Upturns”, and those in the bottom quartile are denoted as “Industry Downturns”. This construction forces each industry to have the same number of upturn years as downturn years.

Figure 1 presents the breakdown of industry upturns and downturns, as defined by ROA and MtB. Panel A presents the number of industries in a given year which are in an upturn or a downturn. For instance, in 1992 we can see that five industries were in downturn as defined by the median firm’s ROA in the industry. For the same year, 15 industries were in an upturn, while the remaining industries (the middle two quartiles) are in a “neutral” economic state. Panel B presents the results where each year reports the number of industry-firms currently in an upturn or downturn. This amounts to multiplying the industries in a particular state by the number of firms in that industry, then scaling it by the total number firms present in that year. For instance, in 1992 we see that 13% of firms in the full sample were in a downturn as defined by their industry.

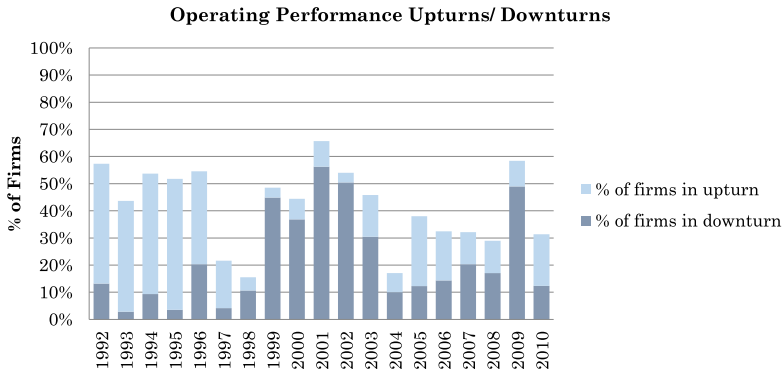
Panels C and D present the same upturn/downturn categorization except instead of using median ROA to define the industry-state, we now use median MtB to define the industry-state. Both of these figures conform to our intuition of valuation upturns/downturns over the past 19 years. Between 1996 and 1999 we see a large percentage of industry-firms (Panel D) in an upturn and very few industry-firms in a valuation downturn. Then, following the tech-market crash (right around August 2000) we see the number of industry-firms categorized as being in a downturn drastically rise for year-end 2000. This is followed by 60% of industry-firms being in a downturn for year-end

¹⁴We use median measures of industry performance to define upturns/downturns due to the fact in-industry means are very sensitive to outliers (especially MtB) and to the entry and exit of new firms over time. A ranking classification based on the value-weighted performance level in the industry yields similar economic state delineations, though differences persist in small and concentrated industries. To avoid any selection bias problem and to eliminate any problem with one single firm defining economic states in small industries, the median ranking methodology is implemented throughout.

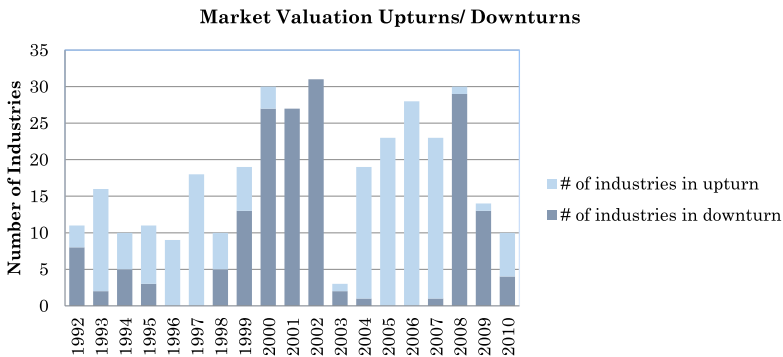
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Panel A: Number of industries in an upturn or downturn based on operating performance (ROA)



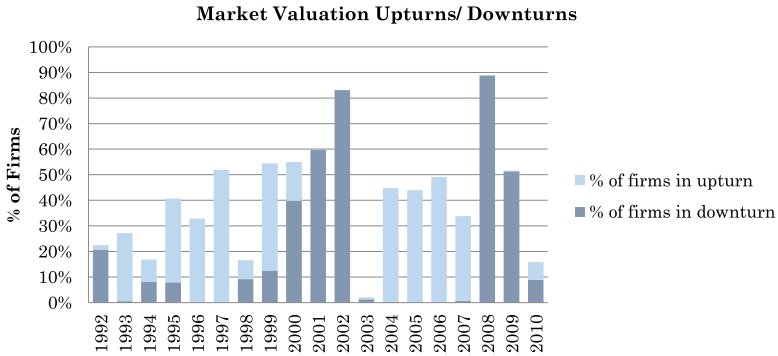
Panel B: Percent of firms in an upturn or downturn based on operating performance (ROA)



Panel C: Number of industries in an upturn or downturn based on market valuation (MtB)

Fig. 1. Industry Upturns and Downturns.

Notes: The figure presents the breakdown of industry upturns and downturns as defined by operating performance (ROA) and firm valuation (MtB). Panel A and Panel C provide the number of industries in each year that are in an upturn or downturn based on median ROA and median MtB, respectively. Panel B and Panel D provide the percent of firms in our sample that are in industry upturns or downturns based on the median ROA and MtB, respectively.



Panel D: Percent of firms in an upturn or downturn based on market valuation (MtB)

Fig. 1. (Continued)

2001 and 82% of industry-firms being in a downturn in 2002. Across the 19 year period, the years with the greatest number of firms being categorized as MtB downturns are 2001, 2002, 2008, and 2009.

2.3. Sample description

We utilize five databases to create the sample used in this study: the COMPUSTAT database, the Thomson Financial Institutional Ownership database, Execucomp, the Corporate Library, and the IRRIC database.

From COMPUSTAT we access firm-specific information necessary for the analysis. These variables include: total assets, book leverage, cash holdings, capital expenditures, R&D intensity (R&D/Sales), cash flow (earnings before extraordinary items plus depreciation), ROA, ROE, ROI, MtB (ratio of the market value to book value of assets), PPE, wages, intangible assets, advertising expenditures, SG&A, and firm age.¹⁵ To ensure that outliers do not have a material impact on the results, variables are winsorized at the 0.5% level.

To access data needed to create the necessary proxies for the level of antitakeover protection in each firm (shareholder rights), we use the IRRIC database. The IRRIC database provides annual data for approximately 1,500 firms, primarily from the S&P 500 and other large corporations. The annual

¹⁵Specifically, ROA is operating income before depreciation over assets. MtB is the book value of assets minus book value of equity plus the market value of equity normalized by the book value of assets. SG&A is selling, general, and administrative expenses over assets. Advertising expenditures is scaled by sales. Intangible assets are one minus the ratio of net PPE to book assets.

data is collected from firm proxy statements, annual reports, and SEC filings. Since the data is collected sporadically, we follow Gompers *et al.* (2003) to fill in missing observations. The GIndex used in subsequent sections, a proxy for firm-specific external corporate governance, follows from Gompers *et al.* (2003). The IRRC database also provides the necessary information for board characteristics over the 1996 to 2004 period. For the post-2004 period, board data is taken from the Corporate Library. The two datasets provide information on board affiliation, number of other board positions that each member holds, and number of directors. For pre-1996 board data, we hand collect data on board size and independence from SEC Edgar filings.

Next, Thomson Financial Institutional Ownership database (Form 13-F) is used to collect data on institutional investors and allows us to calculate the single largest blockholder and aggregate institutional ownership. Finally, Execucomp is employed to collect data on CEO compensation. These variables include CEO shares held, total compensation, restricted grants, option grants, salary, bonus, and unexercised options holdings.

For a firm-year observation to be included in the final dataset, data on ROA, MtB, book leverage and assets must be available from COMPUSTAT. In addition, the firm-year must be present in the IRRC database (GIndex) and have available institutional ownership information on Thomson. Since the empirical analysis requires lagged observations, each firm must have available information for two consecutive years to be included. In addition, we remove all regulated firms (utilities and financials). These necessary conditions result in 15,109 firm-year observations for 1,895 firms over the span of the sample period (1992 to 2010).

2.4. Summary statistics

In this section, we provide summary statistics for firm-year observations in the sample. Panel A of Table 1 includes the mean, median, standard deviation, 25th percentile, and 75th percentile for all variables detailed. First, the firm-year total assets in the sample exhibits strong skewness, and hence the logarithmic transform of assets is used in subsequent analysis. The average firm has 31.2% book leverage, 369 million US dollars in cash holdings, and an R&D intensity of 0.075. The average ROA and MtB of a firm in the sample is 0.141 and 2.033, respectively. ROA appears to be a very symmetric measure, while MtB exhibits slight skewness. The GIndex of the sample firm has a mean and median close to 9. Next, the sum of institutional holdings for a firm-year observation averages 68% and the average single largest blockholder

Table 1. Summary statistics.

	Firm-Year Obs	Mean	Median	Std Dev	25th Percentile	75th Percentile
Panel A: Firm Statistics						
<i>Financial and Investment Policies</i>						
Assets (\$MM)	15140	4372	1135	10248	481	3181
Book Leverage	15084	0.312	0.313	0.231	0.103	0.473
Cash Holdings	15136	369	80	972	23	253
CapEx/Capital	14877	0.293	0.216	0.307	0.139	0.346
Cash Flow/Capital	15015	0.548	0.390	2.523	0.198	0.738
Intangible Assets	15140	0.704	0.756	0.212	0.588	0.867
R&D Intensity	15140	0.075	0.004	0.685	0.000	0.049
ROA	15140	0.141	0.141	0.106	0.094	0.193
ROE	15140	0.046	0.108	0.629	0.038	0.172
ROI	15129	0.057	0.079	0.260	0.029	0.133
MtB	15109	2.033	1.586	1.478	1.211	2.299
<i>Governance and Compensation Policies</i>						
GIndex	15140	9.126	9.000	2.688	7.000	11.000
Institutional Ownership	10971	0.680	0.706	0.215	0.548	0.839
Blockholder	10971	0.095	0.089	0.051	0.062	0.120
CEO Salary (\$M)	13216	665	606	329	432	847
CEO Total Comp (\$M)	13119	4606	2480	6358	1214	5213
CEO Pay Sensitivity	13101	0.414	0.437	0.291	0.150	0.649
CEO Ownership (%)	6604	4.705	1.280	7.985	0.420	4.725
<i>Board Characteristics</i>						
Board Size	15140	9.161	9.000	2.549	7.000	11.000
Independence	12931	0.645	0.667	0.179	0.538	0.778
Outsiders	12931	5.852	6.000	2.327	4.000	7.000
Fraction Busy	11010	0.129	0.100	0.151	0.000	0.214
			GIndex	Inst Own		Board Size
Panel B: Partitioned by Size and Ind. State						
Size Quartile = 1 (smallest)		8		0.629		7
Size Quartile = 2		9		0.727		8
Size Quartile = 3		9		0.757		9
Size Quartile = 4 (largest)		10		0.713		11
Size Quartile = 1						
ROA Industry Quartile = 1 (Downturn)		8		0.637		7
ROA Industry Quartile = 2		8		0.703		7
ROA Industry Quartile = 3		8		0.618		7
ROA Industry Quartile = 4 (Upturn)		8		0.533		8
Size Quartile = 4 (largest)						
ROA Industry Quartile = 1 (Downturn)		10		0.722		11
ROA Industry Quartile = 2		10		0.727		11
ROA Industry Quartile = 3		10		0.708		11
ROA Industry Quartile = 4 (Upturn)		10		0.701		11
Size Quartile = 1						
MtB Industry Quartile = 1 (Downturn)		8		0.657		7
MtB Industry Quartile = 2		8		0.623		7
MtB Industry Quartile = 3		8		0.612		7

Table 1. (Continued)

	GIndex	Inst Own	Board Size		
MtB Industry Quartile = 4 (Upturn) Size Quartile = 4 (largest)	8	0.645	7		
MtB Industry Quartile = 1 (Downturn)	10	0.728	11		
MtB Industry Quartile = 2	10	0.713	11		
MtB Industry Quartile = 3	10	0.699	11		
MtB Industry Quartile = 4 (Upturn)	10	0.732	11		
	Mean	Median	Std Dev	25th Percentile	75th Percentile
Panel C: Summary of Industry Inner-Quartile Range					
ROA	0.030	0.031	0.013	0.018	0.040
MtB	0.356	0.319	0.161	0.256	0.433

Notes: This table reports summary statistics for the sample. The sample comprises 15,140 firm-year observations covering the period 1992 to 2010. The firm policy descriptive statistics in Panel A include: assets (in millions), book leverage, cash holdings, capital expenditures normalized by capital, cash flow normalized by capital, intangible assets, R&D intensity (R&D/Sales), return on assets, return on investment, return on equity, and the ratio of the market value to book value of assets (market-to-book). The governance and compensation descriptive statistics in Panel A include: the Gompers *et al.* (2003) antitakeover index (GIndex), institutional ownership, top blockholder, CEO salary (in thousands), CEO total compensation (in thousands), CEO percent ownership and CEO pay sensitivity (equity compensation over total compensation). The board descriptive statistics include: board size, number of outsiders, the ratio of outsiders to board size (independence), and the fraction of board members sitting on three or more boards (fraction busy). Panel B presents a summary of governance measures across size quartiles and industry-states, where the median of each measure of interest is presented. In Panel C, across each industry-year, the median performance (ROA, MtB) measure is calculated. Then across the span of the investigation period (1992–2010), the inner-quartile range is calculated for each industry. The panel presents summary statistics for the inner-quartile range of each performance metric for the FF48 industries.

owns 9.5%. The average board comprises of 9 members and has approximately 65% independent directors.

Panel B details a breakdown of the key governance metrics across size quartiles (assets) and across industry conditions. The industry conditions are presented according to the ranking classification (quartiles) of the median firm performance (ROA, MtB) in each industry over the span of the sample period. First, across size quartiles, the medians associated with certain governance standards are presented. GIndex, institutional ownership, and board size all exhibit positive correlations with size — as firm size increases, the median associated with each governance metric also increases.

Next, across industry-specific economic states (ROA and MtB quartiles), the median level of each governance metric is presented. Within each size

quartile, no significant industry-state effect persists. Across MtB industry rankings, all governance metrics appear quite stable. In other words, as firms within size quartiles move across industry-states (upturns and downturns), the median level of each internal/external governance measure does not exhibit great change. Across ROA industry rankings, similar results hold, with a slight industry-state effect in the lowest size quartile. In this size quartile, institutional ownership is slightly higher when the industry is in a downturn than when it is in an upturn. On average, while industry-states are fluctuating, governance metrics do not exhibit much adjustment across states.

Panel C demonstrates the amount of variation in median levels of performance within each industry over time. Over the time period 1992–2010, the inner-quartile range for each median performance measure is calculated for each industry (FF48). The panel presents summary statistics for the inner-quartile range of each performance metric for the FF48 industries. First, the average inner-quartile range for the median ROA (MtB) in the industry is 0.030 (0.356). This indicates that the median firm in the average industry moves from an ROA of 0.125 in the industry downturn (25th percentile) to 0.160 in the industry upturn (75th percentile). The median firm in the average industry moves from a MtB of 1.41 in the industry downturn (25th percentile) to 1.74 in the industry upturn (75th percentile). The industries with the greatest amount of variation over time according to MtB are: gold and silver mines, miscellaneous manufacturing, tobacco, surgical and medical instruments, medical and pharmaceuticals, ammunitions and guided missiles, mineral ore mining, coal mining, advertising, computers, electronic components, lab and optics instruments. The industries with the greatest amount of variation over time according to ROA are: surgical and medical instruments, medical and pharmaceuticals, publishing, metal works, miscellaneous manufacturing, aircraft, railroad and ship, mineral ore, petroleum and gas, communications, advertising, computers, and electronic components. Both of the ranking classifications exhibit strong cross-over in terms of high variation industries.

3. Empirical Design

In the following sections we describe the empirical methodology and results. First, we address the endogeneity concern that firm specific performance leads to changes in governance mechanisms by showing that the within-industry rankings of governance mechanisms examined in this study are stationary. Second, we detail univariate results pertaining to governance characteristics and economic states by individually examining the differences

in firm performance over industry economic conditions for each governance mechanism. Next, we present the relation between internal/external governance mechanisms, economic states and performance in a multivariate setting. Following this, we investigate the exact form of the agency costs (firm policies and compensation) associated with the governance mechanisms over economic states.

3.1. Stability of governance mechanisms over time

Prior to testing our two hypotheses, we first establish that within-industry rankings of our external and internal governance mechanisms (shareholder rights, board size, and institutional ownership) are stationary over time. To do this we quartile rank each governance mechanism in the cross-section within-industry and compare the ranking position one, three, and five years prior. Having stationary governance mechanisms is essential to the subsequent tests, which are predicated on governance mechanisms affecting firm-specific performance rather than performance driving changes in governance.

Since the central performance metric implemented in this study is industry adjusted performance, and governance is a relative mechanism, the most important feature to determine the stability of a firm's governance position is its within-industry ranking over time. While it is certain that governance mechanisms shift over time — boards add new members or cut members, antitakeover provisions are added or removed, and institutional investors change equity positions — if the firm's relative position remains constant, then any endogeneity claims are abated. If a firm with strong governance (ranked in the top quartile of its industry) slightly changes its position over time yet still remains in the top quartile in its industry, then the valuation conclusions concerning mechanisms over industry-states still holds.

Table 2 details the relative rankings of internal and external governance metrics within-industry over time. Each firm governance mechanism is ranked in the cross-section within its industry. The ranking is then compared to its ranking position one, three and five years prior. The mean, median and standard deviation of the ranking over prior years is reported. GIndex, board size and total institutional ownership are all highly stable. For shareholder rights (GIndex), a firm that ranks in the top position within its industry in a given year (denoted by a value of three), has an average position of 2.66 five years prior. The ordinal relationship of rankings is preserved as well (i.e. the initial 0, 1, 2, 3 ranking still persists in the median rankings five years prior). This indicates that shareholder rights are very stable over time. Comparing

Table 2. Movement of governance metrics.

	Rank 1-Year Prior			Rank 3-Years Prior			Rank 5-Years Prior		
	Mean	Median	Std	Mean	Median	Std	Mean	Median	Std
<i>GIndex Rank in Year t</i>									
Rank = 0 (strong SR)	0.07	0	0.28	0.17	0	0.42	0.22	0	0.48
Rank = 1	0.99	1	0.40	0.93	1	0.58	0.90	1	0.68
Rank = 2	1.95	2	0.42	1.86	2	0.62	1.77	2	0.70
Rank = 3 (weak SR)	2.89	3	0.35	2.75	3	0.52	2.66	3	0.61
<i>Board Size Rank in Year t</i>									
Rank = 0 (small)	0.28	0	0.55	0.46	0	0.71	0.58	0	0.80
Rank = 1	1.07	1	0.69	1.11	1	0.86	1.16	1	0.93
Rank = 2	1.92	2	0.69	1.82	2	0.84	1.75	2	0.91
Rank = 3 (large)	2.72	3	0.54	2.55	3	0.69	2.42	3	0.79
<i>Inst Own Rank in Year t</i>									
Rank = 0 (low)	0.37	0	0.83	0.58	0	0.83	0.70	0	0.87
Rank = 1	1.17	1	0.91	1.28	1	0.91	1.35	1	0.95
Rank = 2	1.91	2	0.91	1.89	2	0.91	1.89	2	0.95
Rank = 3 (high)	2.52	3	0.89	2.29	3	0.89	2.17	2	0.95
<i>Block Rank in Year t</i>									
Rank = 0 (low)	0.61	0	0.86	0.97	1	1.03	1.08	1	1.09
Rank = 1	1.20	1	0.91	1.36	1	1.02	1.38	1	1.03
Rank = 2	1.78	2	0.90	1.64	2	1.04	1.63	2	1.05
Rank = 3 (high)	2.41	3	0.86	2.06	2	1.02	1.93	2	1.06
<i>Sum of Block Rank in Year t</i>									
Rank = 0 (Low)	0.75	1	0.86	1.08	1	1.02	1.13	1	1.03
Rank = 1	1.23	1	0.94	1.33	1	1.02	1.41	1	1.05
Rank = 2	1.76	2	0.95	1.65	2	1.03	1.60	2	1.06
Rank = 3 (High)	2.37	3	0.84	2.07	2	1.00	1.90	2	1.05

Notes: The table provides a breakdown of firm governance mechanism rankings within industries over time. Each governance mechanism is ranked in the cross-section within its industry. A ranking based on quartiles within industry is formed, where high governance denotes the top quartile, and low governance denotes the bottom quartile. Each firm governance ranking is then compared to its industry ranking one, three, and five years prior. The governance variables of interest include GIndex, board size, total institutional ownership, top blockholder, and the sum of blockholders with greater than a 5% equity stake. The mean, median and standard deviation of the firm ranking for each governance metric over prior years (one, three, and five) are reported.

this to board size, a firm in the top quartile of board size in its industry (denoted by a value of three), has an average position of 2.42 five years prior. This indicates that board size is strongly stable within industries over time. In addition, the ordinal relationship of rankings for board size is preserved as well over five years. Alternatively, stability can be expressed as follows: a firm in the upper quartile of board size in a given year will have an 88% chance of still being above the median level of board size in its industry five years prior.

Following this, total institutional ownership is also relatively stable as well. A firm ranked in the top quartile of institutional ownership in its industry in a given year will still be above the median five years prior 82% of the time. The ordinal relation of rankings for total institutional ownership is also preserved over a five-year setting. We also look at the stability of two alternative measures of institutional ownership: the top blockholder and the sum of all blockholders. These alternative measures exhibit weak stability with the ordinal relationship five-years prior being weakly preserved (the initial 0, 1, 2, 3 ranking becomes 1, 1, 2, 2 in the median rankings five-years prior).¹⁶ Establishing stability in our external and internal governance measures while industry economic states fluctuate (by construction) allows us to study the effectiveness of certain mechanisms in particular economic states rather than being concerned that governance is a reactionary measure driven by performance.¹⁷

Before proceeding, it is worth addressing why we would expect stability to exist in board size, institutional ownership and shareholder rights even though each of these mechanisms could have very different values over economic states. The adjustment costs associated with making a drastic change to a particular mechanism may be quite high. Even though shareholders may want to shift to a smaller board or a firm structure with fewer antitakeover provisions in an industry upturn, doing so is not practical given the short time period to take action. For example, shareholders cannot dismiss half the directors on a board only to ask them to come back to the board in a two-year time period once the industry is no longer in an upturn. The same feasibility problem exists for the removal of antitakeover protection. In the data, we see industries move in and out of upturns/downturns on a rolling basis in as short as 1.5 years. To anticipate a shift in the economic state would take complete foresight on the part of shareholders; shareholders would have to correctly anticipate the shift in the economic state coming ahead of time, make changes to the governance mechanism and then revert back to the original structure before the economic state changes again. If industries cycle through upturns and downturns on a two to three year rolling basis (on average), feasibility may prevent governance from being dynamic, resulting in stability in

¹⁶We replicate all tests that use total institutional ownership with our alternative measures and find consistent results between all the institutional measures. Results are omitted from subsequent tables for brevity.

¹⁷We provide an alternate method for addressing this potential endogeneity concern in the robustness section.

governance mechanisms over time, even though they have very different value over economic states.

3.2. *Univariate results*

In this section, we address how the value of various governance mechanisms depends on the economic state of the industry. To analyze the effect of various governance mechanisms on firm performance over industry-specific economic states, we first rank firms within industry groupings (as well as firm size groupings) and then separate them based on the industry economic state. We look at the differences in the mean and median performance for the upper and lower quartiles of each governance metric within an industry-state. Additionally, we look at the difference in the difference of the mean and median performance across the industry-states (i.e. the state dependent difference), in a univariate analysis.

3.2.1. Governance and operating performance across industry-states

As previously noted, the industry-state is defined by the median operating performance (ROA) of the firm in the industry. The ranking classification is implemented within each industry over the span of the sample period, and industry-years in the top quartile are denoted as “Industry Upturns”, and those in the bottom quartile are denoted as “Industry Downturns”. Next, external and internal governance mechanisms (GIndex, institutional ownership and board size) are ranked within industry (in the cross-section), and firms in the upper quartile within each industry are denoted as strong shareholder rights, high institutional ownership and large boards, respectively. Those in the bottom quartile are denoted as weak shareholder rights, low institutional ownership and small board size, respectively.¹⁸ This industry-governance ranking produces equal numbers of firms allocated to each governance classification within each industry, and is denoted as “Industry Ranking” in all tables.

Since GIndex, institutional ownership and board size are all correlated with size, a second governance ranking classification is implemented, where size quartiles are defined in the cross-section and each governance mechanism is ranked in its respective size quartile. This second ranking classification is denoted as “Size Ranking” in all tables. This ranking scheme is especially

¹⁸This ranking methodology across industry-states and governance captures the extreme quartiles of each, and hence the univariate analysis deals with one-fourth of the full sample. In the multivariate setting, the full sample will be employed.

important in defining the state dependent value of board size. Since firm size is a strong determinant of board size (Boone *et al.*, 2007; Coles *et al.*, 2008), this adjustment controls for the state dependent value which firm size may have, thus isolating the value of board size over industry economic states.

Next, performance levels for each firm are determined in two manners. First, each firm operating performance (ROA) is industry adjusted, where the benchmark is the median industry level in a given year. Since the sample implemented in this study is contingent on firm inclusion in the IRRC database, calculating median levels based solely on within sample firms would constitute a selection bias since the IRRC database contains the large and more profitable firms than the universe of firms.¹⁹ To adjust for this issue, and to be consistent with the construction of industry-specific economic states, industry medians are defined relative to all firms in COMPUSTAT with available information, again defining industries at the FF48 industry level (Fama and French, 1997).²⁰ Following this, the second performance metric is industry and size adjusted. Size quartiles are defined in the cross-section, and then the median performance within each industry-size quartile is defined. The industry-size adjusted performance is the operating performance of the firm minus this benchmark.

Table 3 presents the results of the two-way sort of governance rankings and industry states for operating performance. Panel A details the results where the governance mechanism of interest is the GIndex. First, in the industry upturn, firms with strong shareholder rights (low GIndex) are significantly outperforming firms with weak shareholder rights by an average ROA of 0.019 across all four rankings. In the industry downturn, firms with strong shareholder rights (low GIndex) are underperforming those with weak shareholder rights by an average ROA of 0.013. The difference over economic states averages 0.032, and is highly statistically significant across all ranking classifications. Considering that the average ROA for a firm in our sample is 0.141, and that the state dependent difference in operating performance between firms with strong shareholder rights and low shareholder rights is

¹⁹IRRC essentially covers the S&P 500 until 1998, at which time it was expanded to the S&P 1500.

²⁰Though, it should be noted that since we look at the difference in governance mechanisms within an industry-state, and then look at the difference in the differences across industry states (state dependent difference), any particular industry benchmark used will be canceled out in this procedure. All results in the univariate and forthcoming multivariate setting hold whether the industry benchmark is defined in sample or according to all COMPUSTAT firms.

Table 3. The state dependent impact of governance on firm operating performance (ROA).

	Industry Upturn		Industry Downturn		Diff-Diff	
	Strong SR (1)	Weak SR (2)	Difference (1)-(2)	Strong SR (3)		Weak SR (4)
Panel A: External Governance Measure = GIndex						
<i>Industry Adj ROA</i>						
(1) Size Ranking	0.0458 [0.0343]	0.0323 [0.0238]	0.0135*** [0.0106]**	0.0452 [0.039]	0.0515 [0.0387]	-0.0063 [0.0003]
(2) Industry Ranking	0.0497 [0.0385]	0.0265 [0.0208]	0.0232*** [0.0177]***	0.0360 [0.033]	0.0635 [0.0476]	-0.0274*** [-0.0146]***
<i>Industry-Size Adj ROA</i>						
(1) Size Ranking	0.0267 [0.0154]	0.0110 [0.0070]	0.0158*** [0.0084]***	0.0095 [0.0065]	0.0125 [0.0128]	-0.0030 [-0.0064]
(2) Industry Ranking	0.0285 [0.0167]	0.0048 [0.0043]	0.0238*** [0.0124]***	0.0036 [0.0047]	0.0173 [0.0185]	-0.0137*** [-0.0139]***
Panel B: Internal Governance Measure = Board Size						
<i>Industry Adj ROA</i>						
(1) Size Ranking	0.0312 [0.0252]	0.0358 [0.0275]	-0.0045 [-0.0024]	0.0565 [0.0414]	0.0392 [0.0382]	0.0173*** [0.0032]*
(2) Industry Ranking	0.0363 [0.0292]	0.0439 [0.0317]	-0.0077 [-0.0025]	0.0696 [0.0536]	0.0354 [0.0278]	0.0342*** [0.0258]***
<i>Industry-Size Adj ROA</i>						
(1) Size Ranking	0.0151 [0.0094]	0.0172 [0.0102]	-0.0020 [-0.0008]	0.0157 [0.0163]	-0.0032 [0.0039]	0.0189*** [0.0124]***
(2) Industry Ranking	0.0183 [0.0119]	0.0273 [0.0142]	-0.0089 [-0.0023]	0.0167 [0.0185]	0.0004 [0.0019]	0.0163*** [0.0167]***

Table 3. (Continued)

	Industry Upturn		Industry Downturn		Diff-Diff		
	High IO (1)	Low IO (2)	High IO (3)	Low IO (4)			
	Difference (1)-(2)		Difference (3)-(4)				
Panel C: Internal Governance Measure = Institutional Ownership							
<i>Industry Adj ROA</i>							
(1) Size Ranking	0.0419 [0.0297]	0.0314 [0.0255]	0.0105 [0.0042]**	0.0627 [0.0445]	0.0437 [0.0390]	0.0191*** [0.0056]*	-0.0086 [-0.0014]***
(2) Industry Ranking	0.0401 [0.0290]	0.0286 [0.0210]	0.0115 [0.0080]**	0.0598 [0.0402]	0.0343 [0.0350]	0.0254*** [0.0052]**	-0.0140 [0.0028]***
<i>Industry-Size Adj ROA</i>							
(1) Size Ranking	0.0155 [0.0102]	0.0102 [0.0069]	0.0070 [0.0048]**	0.0110 [0.0059]	0.0029 [0.0127]	0.0081 [-0.0068]	-0.0028 [0.0100]
(2) Industry Ranking	0.0154 [0.0110]	0.0083 [0.0040]	0.0078 [0.0072]**	0.0104 [0.0062]	-0.0025 [0.0123]	0.0129** [-0.0061]	-0.0058 [0.0130]

Notes: The table reports differences in firm performance over industry economic conditions (as defined by ROA) and various governance mechanisms of the firm. Performance measures for ROA are presented in two manners: industry adjusted, and industry-size adjusted. Industry adjusted performance is constructed by taking the difference between the firm ROA and the median industry ROA, where the median industry ROA is calculated based on all firms in the FF48 industry classification in a given year. Industry-size adjusted performance is constructed in the same manner, with the single adjustment that the median benchmark is size and industry adjusted, according to cross-sectional size quartiles. Industry-specific conditions correspond to a ranking of the median ROA within industry across the sample period. For each industry, median ROA-years in the upper (lower) quartile are denoted as industry upturns (downturn) years. The external and internal governance mechanisms examined are: GIndex, institutional ownership and board size. Two ranking classifications for each governance mechanism are implemented. First, each firm-governance measure is ranked in the cross-section within size quartiles. Second, each firm-governance measure is ranked in the cross-section in its industry. Each high and low state of governance corresponds to the upper and lower quartile in the ranking classification. The mean [median] value associated with each governance-state performance measure are presented below. Two-sided *t*-tests and Wilcoxon tests are used to test whether mean and median differences across governance states and valuation states are significant. For brevity, we indicate statistical significance at the 1%, 5%, and 10% level using ***, **, and *, respectively for all columns that involve differences.

0.0506 (given the industry ranking), the economic impact of the operating performance differences across economic states is 35.9% of the average firm's operating performance in our sample. This complete reversal in the value of shareholder rights over economic conditions supports our first hypothesis H1 that external governance exhibits pro-cyclical value. During industry upturns, strong shareholder rights plans (our measure of external governance) have incrementally more value than weak shareholder rights plans, and during industry downturns this relationship weakens/reverses.

Next, we look at internal governance mechanisms. Panel B documents that firms with large boards have considerably higher operating performance levels during industry downturns as compared to industry upturns. When managerial slack is high (industry upturns), large boards are weakly underperforming small boards by an average ROA of 0.0056 across the four ranking classifications. Yet, when slack is low (industry downturns), large boards are significantly outperforming small boards by an average ROA of 0.0217. This leads to an average ROA difference across industry-states of 0.0275, and is significant across all four specifications. Again, given that the average ROA for a firm in our sample is 0.141, and that the state dependent difference in operating performance between firms with large boards and small boards is 0.0419 (given the industry ranking), the economic impact of the operating performance differences across economic states is 29.7% of the average firm's operating performance in our sample. These findings provide support for our second hypothesis H2 that internal governance exhibits counter-cyclical value. Large boards have incrementally more value than small boards during industry downturns, as compared to industry upturns.

Panel C details the results where the internal governance mechanism of interest is aggregate institutional ownership. Institutional ownership is weakly positively related to operating performance during upturns (averaging 0.001), and weakly positively related to performance during downturns (averaging 0.016). The difference across industry-states averages -0.008 , however there is a lack of statistical significance. These findings provide inconclusive evidence that aggregate institutional ownership has counter-cyclical value as hypothesized in H2.²¹

²¹Replicating this table and all subsequent univariate tables using our alternative measures of institutional ownership — blockholder, the sum of blockholders (the sum of all institutional holdings where each institution owns at least a 5% stake) — provides equally weak results and is omitted for brevity.

3.2.2. *Governance and valuation across industry-states*

In this section, we use firm valuation (market-to-book ratio of the firm (MtB)) to define industry states. All ranking classifications based on median firm valuation (MtB), and groupings of industry upturns and downturns by quartiles within industries follow in an equivalent fashion to the previous section using MtB. Table 4 presents the results where state dependent differences are examined across MtB industry-states and governance rankings. Panel A details the results where the governance mechanism of interest is the GIndex. First, in the industry upturn, firms with strong shareholder rights (low GIndex) are significantly outperforming firms with weak shareholder rights by an average MtB of 0.48 across all four rankings. In the industry downturn, firms with strong shareholder rights are still weakly outperforming those with weak shareholder rights, but this difference has been reduced to 0.08 and is not as statistically significant. This leads to an average MtB difference across industry-states of 0.40, and is significant across all four ranking specifications. While the results pertaining to differences in ROA see a complete reversal in governance valuation across industry-states, the results associated with MtB still detail the pro-cyclical value of shareholder rights. Given that skewness may be a more important factor to consider when examining differences in MtB across industry-states, it is important to note that the results presented hold across median differences as well. Considering that the average MtB for a firm in our sample is 2.033, and that the state dependent difference in operating valuation between firms with strong shareholder rights and low shareholder rights is 0.435 (given the industry ranking), the economic magnitude of the valuation differences across economic states is 21.4% of the average firm's valuation in our sample.

In Panel B, the governance variable of interest is board size. Again, as previously documented, large boards are underperforming small boards during industry upturns. The underperformance persists during downturns, but is not highly significant. This leads to a MtB difference that averages 0.123 across industry-states, yet is less consistently significant across the ranking specifications (as compared to the results associated with operating performance). Given that the average MtB for a firm in our sample is 2.033, and that the state dependent difference in valuation between firms with large boards and small boards is 0.173 (given the industry ranking), the economic impact of the valuation differences across economic states is 8.5% of the average firm's valuation. These results lead to slightly weaker support of H2, that internal governance (as measured by board size) exhibits counter-cyclical value.

Table 4. The state dependent impact of governance on firm valuation (MtB).

	Industry Upturn			Industry Downturn			Diff-Diff
	Strong SR (1)	Weak SR (2)	Difference (1)-(2)	Strong SR (3)	Weak SR (4)	Difference (3)-(4)	
	Panel A: External Governance Measure = GIndex						
<i>Industry Adj MtB</i>							
(1) Size Ranking	0.6840 [0.1525]	0.2030 [0.0034]	0.4181*** [0.1491]***	0.4336 [0.1241]	0.3182 [0.1062]	0.1154** [0.0179]**	0.3657*** [0.1312]***
(2) Industry Ranking	0.7087 [0.1686]	0.1993 [-0.0154]	0.5094*** [0.1840]***	0.3965 [0.1372]	0.3227 [0.0987]	0.0738 [0.0385]**	0.4355*** [0.1455]***
<i>Industry-Size Adj MtB</i>							
(1) Size Ranking	0.6983 [0.1816]	0.2053 [0.0014]	0.4930*** [0.1801]***	0.3573 [0.0640]	0.2505 [0.0480]	0.1068* [0.0159]**	0.3862*** [0.1642]***
(2) Industry Ranking	0.7101 [0.1856]	0.2149 [0.0000]	0.4952*** [0.1856]***	0.3439 [0.0861]	0.2424 [0.0293]	0.1015* [0.0569]***	0.3937*** [0.1287]***
Panel B: Internal Governance Measure = Board Size							
<i>Industry Adj MtB</i>							
(1) Size Ranking	0.3607 [0.0713]	0.6028 [0.0717]	-0.2421*** [-0.0004]	0.3835 [0.1432]	0.5219 [0.1398]	-0.1383** [0.0033]	-0.1038 [-0.0037]***
(2) Industry Ranking	0.3448 [0.0684]	0.5917 [0.1532]	-0.2469*** [-0.0848]**	0.4199 [0.1483]	0.4937 [0.1334]	-0.0738 [0.0149]	-0.1731* [-0.0998]***
<i>Industry-Size Adj MtB</i>							
(1) Size Ranking	0.3496 [0.0599]	0.5934 [0.0608]	-0.2438*** [-0.0010]	0.3118 [0.0983]	0.4421 [0.0719]	-0.1303** [0.0265]	-0.1135 [-0.0274]
(2) Industry Ranking	0.3437 [0.0799]	0.5874 [0.1500]	-0.2437*** [-0.0702]**	0.3078 [0.0728]	0.4498 [0.1137]	-0.1420** [-0.0408]	-0.1017 [-0.0294]*

Table 4. (Continued)

	Industry Upturn			Industry Downturn			Diff-Diff
	High IO (1)	Low IO (2)	Difference (1)-(2)	High IO (3)	Low IO (4)	Difference (3)-(4)	
	Panel C: Internal Governance Measure = Institutional Ownership						
<i>Industry Adj MtB</i>							
(1) Size Ranking	0.5376 [0.0056]	0.3279 [0.0514]	0.2097*** [-0.0457]	0.3743 [0.1181]	0.4091 [0.1239]	-0.0348 [-0.0058]	0.2444*** [-0.0399]***
(2) Industry Ranking	0.5167 [0.0103]	0.3596 [0.0443]	0.1571** [-0.0341]	0.3888 [0.1229]	0.3698 [0.1204]	0.0190 [0.0025]	0.1381 [-0.0366]***
<i>Industry-Size Adj MtB</i>							
(1) Size Ranking	0.5445 [0.0189]	0.3247 [0.0662]	0.2198** [-0.0472]	0.3056 [0.046]	0.3379 [0.0799]	-0.0323 [-0.0339]	0.2521*** [-0.0133]
(2) Industry Ranking	0.5173 [0.0233]	0.3701 [0.0587]	0.1472** [-0.0354]	0.3127 [0.0528]	0.3271 [0.0878]	-0.0144 [-0.0351]	0.1616 [-0.0004]

Notes: The table reports differences in firm performance over industry economic conditions (as defined by MtB) and various governance mechanisms of the firm. Performance measures for MtB are presented in two manners: industry adjusted, and industry-size adjusted. Industry adjusted performance is constructed by taking the difference between the firm MtB and the median industry MtB, where the median industry MtB is calculated based on all firms in the FF48 industry classification in a given year. Industry-size adjusted performance is constructed in the same manner, with the single adjustment that the median benchmark is size and industry adjusted, according to cross-sectional size quartiles. Industry-specific conditions correspond to a ranking of the median MtB within industry across the sample period. For each industry, median MtB-years in the upper (lower) quartile are denoted as industry upturn (downturn) years. The external and internal governance mechanisms examined are: GIndex, institutional ownership and board size. Two ranking classifications for each governance mechanism are implemented. First, each firm-governance measure is ranked in the cross-section within size quartiles. Second, each firm-governance measure is ranked in the cross-section in its industry. Each high and low state of governance corresponds to the upper and lower quartile in the ranking classification. The mean [median] value associated with each governance-state performance measure are presented below. Two-sided *t*-tests and Wilcoxon tests are used to test whether mean and median differences across governance states and valuation states are significant. For brevity, we indicate statistical significance at the 1%, 5%, and 10% level using ***, **, and *, respectively for all columns that involve differences.

Panel C documents the differences across MtB where the governance variable of interest is institutional ownership. In industry upturns, firms with high levels of institutional ownership are outperforming those with low levels of institutional ownership. In downturns, the result reverses, where firms with high levels of institutional ownership are underperforming firms with low institutional ownership, yet not in a significant manner. This leads to a weakly significant average MtB difference of 0.20 across industry-states. These results fail to lend support for H2 that internal governance (as measured by aggregate institutional ownership) has counter-cyclical value.²²

3.3. *Multivariate results*

Next, we examine the relation between firm performance, industry-states and internal/external governance mechanisms in a multivariate setting. To begin, the operating performance of the firm (ROA) is considered where industry-states are defined in accordance with the median operating performance in each industry over time. Where previously, industry-states were defined by the extreme quartiles of the median level of ROA in each industry, in order to implement the full sample in a multivariate setting, industry-states are partitioned across upper and lower halves. “Ind Upturn” denotes an industry-year where the median ROA in the industry is in the top two quartiles over the span of the sample period.

Panel A of Table 5 details the relation between operating performance, governance and industry-states when the dependent variable is the industry adjusted ROA of the firm. The benchmark used for defining the industry adjusted performance is the median level of ROA in the industry in a given year, considering all firms with available data in the FF48 classification. All governance measures (GIndex, institutional ownership and board size) are industry adjusted in the cross-section, using the median level of each measure in the industry as the benchmark.²³

Column 1 of Panel A presents the baseline regression, where industry adjusted performance is regressed on the primary governance metrics and control variables (book leverage, firm size (log of assets), intangible assets, Herfindahl index, firm age, industry and year fixed effects) with no industry-state interaction terms. The results suggest that institutional

²²This is consistent with [Cornelli et al. \(2013\)](#), who find, in an international setting, that active monitoring mitigates negative outcomes to the CEO due to negative externalities.

²³In addition, due to slight skewness in the measure and to be consistent with the existing literature, board size is treated as log of board size throughout. All results are robust to the unadjusted measure of board size.

WHEN DO GOVERNANCE MECHANISMS MATTER MOST?

Table 5. Governance, industry state and firm profitability (ROA).

	1	2	3	4	5
Panel A: Industry Adjusted ROA					
Ind. Upturn		0.0150 (0.0110)	0.0136 (0.0458)	0.0038 (0.5646)	0.0014 (0.8545)
GIndex	-0.0002 (0.6796)	0.0016 (0.0001)			0.0009 (0.0846)
Ind. Upturn * GIndex		-0.0026 (0.0000)			-0.0020 (0.0072)
Inst Own	0.0832 (0.0000)		0.0986 (0.0000)		0.0991 (0.0000)
Ind. Upturn * Inst Own			-0.0370 (0.0000)		-0.0345 (0.0003)
Board Size	0.0202 (0.0000)			0.0410 (0.0000)	0.0285 (0.0000)
Ind. Upturn * Board Size				-0.0323 (0.0000)	-0.0171 (0.0273)
Ind. Upturn * Book Leverage		-0.0359 (0.0000)	-0.0370 (0.0000)	-0.0291 (0.0001)	-0.0260 (0.0024)
Ind. Upturn * Size		-0.0004 (0.0031)	-0.0005 (0.0049)	-0.0002 (0.1717)	-0.0003 (0.1164)
Ind. Upturn * Intangible Assets		-0.0039 (0.5784)	-0.0070 (0.3778)	0.0055 (0.4834)	0.0030 (0.7425)
Book Leverage	-0.0530 (0.0000)	-0.0348 (0.0000)	-0.0290 (0.0000)	-0.0435 (0.0000)	-0.0430 (0.0000)
Size	0.0003 (0.0168)	0.0006 (0.0000)	0.0007 (0.0000)	0.0003 (0.0172)	0.0004 (0.0042)
Intangible Assets	-0.0929 (0.0000)	-0.0930 (0.0000)	-0.0961 (0.0000)	-0.0925 (0.0000)	-0.0954 (0.0000)
Herfindahl Index	0.0179 (0.3771)	-0.0134 (0.3363)	-0.0042 (0.8024)	0.0073 (0.6616)	0.0152 (0.4528)
Firm Age	0.0007 (0.0000)	0.0006 (0.0000)	0.0007 (0.0000)	0.0005 (0.0000)	0.0007 (0.0000)
<i>N</i>	12222	21760	15451	16808	12222
<i>R</i> ²	0.2144	0.1337	0.1808	0.1720	0.2185
Panel B: ROA					
Ind. Upturn		0.0661 (0.0000)	0.0623 (0.0000)	0.0336 (0.0000)	0.0653 (0.0000)
GIndex	0.0003 (0.4150)	0.0018 (0.0000)			0.0013 (0.0150)
Ind. Upturn * GIndex		-0.0024 (0.0000)			-0.0017 (0.0157)
Inst Own	0.0883 (0.0000)		0.0954 (0.0000)		0.0975 (0.0000)
Ind. Upturn * Inst Own			-0.0236 (0.0013)		-0.0245 (0.0044)
Board Size	-0.0082 (0.0474)			0.0153 (0.0011)	0.0022 (0.6929)

Table 5. (Continued)

	1	2	3	4	5
Ind. Upturn * Board Size				-0.0319	-0.0196
				(0.0000)	(0.0117)
Ind. Upturn * Book Leverage		-0.0448	-0.0491	-0.0401	-0.0393
		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Ind. Upturn * Size		-0.0003	-0.0003	-0.0002	-0.0002
		(0.0230)	(0.0565)	(0.1497)	(0.2343)
Ind. Upturn * Intangible Assets		0.0010	-0.0030	0.0083	0.0049
		(0.8837)	(0.7046)	(0.2956)	(0.5857)
Book Leverage	-0.0526	-0.0297	-0.0218	-0.0336	-0.0335
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Size	0.0005	0.0006	0.0006	0.0005	0.0006
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Intangible Assets	-0.1026	-0.0973	-0.0994	-0.0998	-0.1021
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Herfindahl Index	0.0408	-0.0011	0.0123	0.0130	0.0261
	(0.0459)	(0.9357)	(0.4642)	(0.4431)	(0.2005)
Firm Age	0.0009	0.0006	0.0008	0.0007	0.0008
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
<i>N</i>	12222	21760	15451	16808	12222
<i>R</i> ²	0.1346	0.1271	0.1523	0.1234	0.1480

Notes: The table provides regression results on the interaction between governance mechanisms and industry-specific market conditions and how they relate to firm profitability. The dependent variable in all columns of Panel A is the industry-adjusted profitability (ROA) of the firm. The dependent variable in all columns of Panel B is the unadjusted profitability (ROA) of the firm. The governance variables of interest in each panel are GIndex, institutional ownership and board size, where all governance variables are lagged by one year. In Panel A, all governance variables are industry adjusted in the cross-section. In Panel B, all governance variables are implemented in the unadjusted (raw) form, with the exception of board size which is size adjusted in the cross-section. Industry-specific conditions follow from a ranking classification of the median profitability in each industry over the sample period. An industry upturn classification (Ind Upturn) denotes a contemporaneous industry-year where industry profitability is in the top half over the span of the period. Additional controls include firm size (log of assets), book leverage, intangible assets, the Herfindahl index of the industry, and firm age where all controls are lagged by one year. In parentheses, the corresponding White (1980) heteroskedasticity-consistent *p*-values are reported. All columns include intercept, year and industry fixed effects.

ownership and board size are positively related to performance. Shareholder rights (GIndex) is statistically insignificant.²⁴ All control variables implemented in Column 1 have their expected signs.

²⁴This is consistent with Core *et al.* (2006). The authors implement cross-sectional regressions of industry adjusted performance on shareholder rights and do not find a significant result between GIndex and operating performance when controls are absent. Only when MtB and market capitalization controls are in place do the weakly positive results change to significantly positive (i.e. shareholder rights are positively related to operating performance).

Following this, throughout the rest of Panel A, industry-state interaction terms with governance metrics and control variables are included. These interaction terms between the industry-state and each governance metric capture the marginal effect, which the governance mechanism in question has on performance during an industry upturn. Column 2 highlights that shareholder rights are positively related to operating performance in industry upturns (GIndex is negatively related to ROA in upturns), significant at the 99% confidence level. Columns 3 and 4 demonstrate that institutional ownership and board size are negatively related to ROA in industry upturns (significant at the 99% level). Finally, Column 5 presents the results where all governance mechanisms are considered in tandem. The results documented in Columns 2 through 4 hold in an equivalent fashion: shareholder rights are positively related to performance in economic upturns, while institutional ownership and board size are negatively related to performance in economic upturns.

In Panel B, the dependent variable ROA is now treated in unadjusted form (no longer industry adjusted). In addition, all governance mechanisms are no longer industry adjusted. Since there is a documented firm size effect with board size (Boone *et al.*, 2007; Coles *et al.*, 2008), we size adjust the measure of board size by defining the benchmark it is adjusted against as the median board size in cross-sectional firm size quartiles. Again, Column 1 shows the benchmark regression when we do not include industry-state terms. Similar results presented in Panel A persist in Columns 2 through 5: shareholder rights are positively related to performance in economic upturns, and institutional ownership and board size are negatively related to performance in economic upturns. In Column 5, when external and internal governance mechanisms are included at once, the results still hold. With the results detailed across industry-states where operating performance is the classifying variable, we now proceed with the market-to-book investigation.

Table 6 provides the analysis of the relation between market-to-book, governance and industry-states. Since MtB is the central determinant of performance, industry-states are now defined by the median MtB within each industry across the span of the sample period. Identical control variables to those implemented in Table 5 are used in the following regressions. In Panel A, the dependent variable is the industry adjusted MtB of the firm and all governance mechanisms are cross-sectionally industry adjusted. Column 1 of Panel A presents the baseline regression, where industry adjusted MtB is regressed on the primary internal or external governance metrics with no industry-state interaction terms. The results suggest that shareholder rights

Table 6. Governance, industry state and firm profitability (MtB).

	1	2	3	4	5
Panel A: Industry Adjusted MtB					
Ind. Upturn		0.0587 (0.4200)	0.0950 (0.2607)	0.1207 (0.1529)	0.1612 (0.0897)
GIndex	-0.0101 (0.0295)	-0.0015 (0.7668)			-0.0036 (0.5996)
Ind. Upturn * GIndex		-0.0162 (0.0150)			-0.0115 (0.1974)
Inst Own	0.4193 (0.0000)		0.3943 (0.0000)		0.4146 (0.0000)
Ind. Upturn * Inst Own			0.0092 (0.9283)		0.0095 (0.9353)
Board Size	-0.0429 (0.3910)			0.1935 (0.0014)	0.0036 (0.9589)
Ind. Upturn * Board Size				-0.1665 (0.0390)	-0.0924 (0.3293)
Ind. Upturn * Book Leverage		-0.2558 (0.0009)	-0.3394 (0.0002)	-0.1654 (0.0686)	-0.2318 (0.0255)
Ind. Upturn * Size		-0.0020 (0.2596)	-0.0019 (0.3638)	-0.0020 (0.3594)	-0.0018 (0.4595)
Ind. Upturn * Intangible Assets		0.0743 (0.3789)	0.0464 (0.6310)	-0.0359 (0.7140)	-0.0735 (0.4988)
Book Leverage	-1.1636 (0.0000)	-1.0290 (0.0000)	-0.9671 (0.0000)	-1.1728 (0.0000)	-1.0385 (0.0000)
Size	0.0051 (0.0001)	0.0057 (0.0000)	0.0053 (0.0003)	0.0061 (0.0001)	0.0060 (0.0008)
Intangible Assets	0.4651 (0.0000)	0.3950 (0.0000)	0.4309 (0.0000)	0.4534 (0.0000)	0.5012 (0.0000)
Herfindahl Index	0.2004 (0.4169)	-0.0887 (0.6009)	0.1720 (0.3984)	-0.1424 (0.5050)	0.1813 (0.4631)
Firm Age	-0.0051 (0.0000)	-0.0082 (0.0000)	-0.0079 (0.0000)	-0.0084 (0.0000)	-0.0051 (0.0000)
<i>N</i>	12209	21686	15431	16776	12209
<i>R</i> ²	0.1099	0.0922	0.1051	0.0941	0.1109
Panel B: MtB					
Ind. Upturn		0.4893 (0.0000)	0.4063 (0.0001)	0.3924 (0.0000)	0.6314 (0.0000)
GIndex	-0.0087 (0.0638)	0.0010 (0.8458)			-0.0020 (0.7621)
Ind. Upturn * GIndex		-0.0214 (0.0010)			-0.0124 (0.1536)
Inst Own	0.4279 (0.0000)		0.4592 (0.0000)		0.4918 (0.0000)
Ind. Upturn * Inst Own			-0.0954 (0.3096)		-0.1268 (0.2451)
Board Size	-0.1768 (0.0004)			0.0064 (0.9168)	-0.1144 (0.1101)
Ind. Upturn * Board Size				-0.1596 (0.0503)	-0.1256 (0.1882)

Table 6. (Continued)

	1	2	3	4	5
Ind. Upturn * Book Leverage		-0.3039	-0.4083	-0.2379	-0.2961
		(0.0001)	(0.0000)	(0.0091)	(0.0045)
Ind. Upturn * Size		-0.0013	-0.0013	-0.0017	-0.0012
		(0.4532)	(0.5420)	(0.4225)	(0.6122)
Ind. Upturn * Intangible Assets		0.1649	0.1482	0.0501	0.0076
		(0.0532)	(0.1290)	(0.6128)	(0.9450)
Book Leverage	-1.1862	-1.0131	-0.9400	-1.1197	-1.0109
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Size	0.0054	0.0052	0.0050	0.0069	0.0062
	(0.0000)	(0.0000)	(0.0008)	(0.0000)	(0.0004)
Intangible Assets	0.4518	0.3276	0.3775	0.3688	0.4521
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Herfindahl Index	0.3575	0.0203	0.3336	-0.0672	0.2724
	(0.1525)	(0.9055)	(0.1044)	(0.7550)	(0.2735)
Firm Age	-0.0044	-0.0080	-0.0078	-0.0072	-0.0046
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
<i>N</i>	12209	21686	15431	16776	12209
<i>R</i> ²	0.2133	0.1918	0.2163	0.1902	0.2226

Notes: The table provides regression results on the interaction between governance mechanisms and industry-specific market conditions and how they relate to firm profitability. The dependent variable in all columns of Panel A is the industry-adjusted profitability (MtB) of the firm. The dependent variable in all columns of Panel B is the unadjusted profitability (MtB) of the firm. The governance variables of interest in each panel are GIndex, institutional ownership and board size, where all governance variables are lagged by one year. In Panel A, all governance variables are industry adjusted in the cross-section. In Panel B, all governance variables are implemented in the unadjusted (raw) form, with the exception of board size which is size adjusted in the cross-section. Industry-specific conditions follow from a ranking classification of the median profitability in each industry over the sample period. An industry upturn classification (Ind Upturn) denotes a contemporaneous industry-year where industry profitability is in the top half over the span of the period. Additional controls include firm size (log of assets), book leverage, intangible assets, the Herfindahl index of the industry, and firm age where all controls are lagged by one year. In parentheses, the corresponding White (1980) heteroskedasticity-consistent *p*-values are reported. All columns include intercept, year and industry fixed effects.

are positively related to valuation. Institutional ownership is positively related to valuation, while board size is not statistically significant. In Columns 2 through 5, interaction terms between governance and industry-state terms are included. Column 2 highlights the positive relationship between shareholder rights in economic upturns and valuation. In Column 3, no significant association persists between institutional ownership and performance across states. In Column 4, board size is negatively related to firm valuation in upturns. In Column 5, all control and governance variables are implemented.

Contrary to Column 5 of Table 5, the results do not hold when we include all the governance mechanisms in one regression in Column 5 of Table 6. The lack of findings in Column 5 of Table 6 point to potential multicollinearity problems which we will address in the robustness section.

In Panel B, the dependent variable MtB is now treated in unadjusted form. In addition, all governance mechanisms are left unadjusted, with the exception of board size which is size adjusted in the same manner as before. All results previously documented in Panel A continue to persist in Panel B. Shareholder rights are positively related to firm valuation in upturns. Board size is negatively related to firm performance in upturns and no significant association persists between institutional ownership and performance across states.

Overall, the results presented in Table 6 (MtB) for shareholder rights and board size are consistent with those presented in Table 5 (ROA) and those documented in the univariate analysis. Shareholder rights are positively related to firm performance in industry upturns. This finding holds across both operating performance and MtB measures of firm valuation. Next, board size is negatively related to firm performance in industry upturns. Large boards operate more effectively in economic downturns. This result is most significant when considering operating performance as the basis for firm valuation. Lastly, results are inconclusive for institutional ownership. Institutional ownership is negatively related to operating performance in industry upturns but insignificant when considering firm performance defined by market-to-book.

3.4. Governance, industry state, and firm policies

In this section, we examine the relation between firm policies, governance and industry-states. If certain governance mechanisms operate more efficiently during economic upturns (when operational slack is lacking) to constrain management, then this efficiency gain should be evident in some manner across the decisions of management. For instance, as previously documented, shareholder rights are associated with a significant increase in firm valuation during industry upturns. If this is the case, then how are the policy decisions of firms with strong shareholder rights different from those with weak shareholder rights in good economic times? Are managers in firms with weak shareholder rights expropriating wealth during economic upturns by aggressively making many poor acquisitions? Or, are managers in firms with weak shareholder rights destroying value in a much simpler manner, through

safe decisions — avoiding difficult activities/tasks and not engaging in cost cutting measures? In essence, are the managerial agency costs in accordance with an “empire building” story or a “quiet life” story?

To determine how governance and firm policy decisions are related across economic states, we consider both external and internal governance mechanisms and consider the following firm policy decisions: asset growth, PPE growth, acquisition ratio, SG&A, wages, R&D, and advertising expenditures. Consistent with the existing literature, asset growth, PPE growth, and acquisition ratio are primary measures of an “empire building” story, while SG&A, wages, R&D, and advertising expenditures are primary measures of a “quiet life” story (Bertrand and Mullainathan, 2003; Giroud and Mueller, 2010). Asset growth is defined as the increase in total assets from the year prior to the current year. PPE growth is the increase in property, plant, and equipment from the year prior to the current year. Acquisition ratio is the value of all acquisitions made in the current year normalized by the market capitalization in the current year.²⁵ SG&A denotes selling, general, and administrative expenses normalized by total assets in the current year. Wages denotes the value of labor expense normalized by number of employees (CPI adjusted). R&D expense and advertising expenditures are both normalized by sales.

Table 7 presents the results where each of the firm policy decisions listed above serve as the dependent variable across the columns. For brevity, only the governance variable of interest and its interaction with the industry-state are included. In addition, the following control variables are implemented in each regression: book leverage, firm size (log of assets), intangible assets, and the interaction of each of these measures with the industry-state, firm age and the Herfindahl index of the industry. Industry and year fixed effects are used throughout in all columns as well.²⁶

Panel A details the results associated with the relation between firm policies, GIndex, and the industry-state (as defined by ROA). Columns 1 and 2 show that firms with strong shareholder rights are associated with higher asset growth and PPE growth during industry upturns. In all likelihood, this is a function of the better performance of those firms with strong shareholder rights during upturns. Nevertheless, it certainly does not hint at any “empire

²⁵Including an indicator variable to capture whether an acquisition was made in the current year (from SDC) yields equivalent results as the current form of the variable acquisition ratio.

²⁶An equivalent set of tests where industry fixed effects are removed and firm fixed effects are implemented in all columns (similar to Giroud and Mueller (2010)) still confirms the complete absence of any “empire building” story (to be documented).

Table 7. Governance, industry state and policy decisions.

Dependent Variable	1 Asset Growth	2 PPE Growth	3 Acq Ratio	4 SG&A	5 R&D Exp	6 Wages	7 Adv Exp
Panel A: ROA Industry Upturns							
<i>Firm Decisions and GIndex</i>							
Ind. Upturn	0.0848 (0.0036)	0.1028 (0.0022)	-0.0017 (0.8149)	0.0142 (0.2455)	-0.1110 (0.0836)	-1.5660 (0.7031)	-0.0032 (0.5918)
GIndex	0.0002 (0.9173)	-0.0017 (0.3541)	0.0007 (0.0769)	0.0014 (0.0307)	-0.0089 (0.0100)	0.3075 (0.2676)	-0.0011 (0.0004)
Ind. Upturn * GIndex	-0.0036 (0.0855)	-0.0041 (0.0909)	0.0006 (0.2183)	-0.0021 (0.0143)	0.0079 (0.0835)	0.7866 (0.0274)	0.0006 (0.1251)
<i>N</i>	21575	21575	20348	20278	21760	1791	7606
<i>R</i> ²	0.0584	0.0591	0.0385	0.3825	0.0752	0.5816	0.1792
<i>Firm Decisions and Inst Own</i>							
Ind. Upturn	0.0220 (0.4746)	0.0253 (0.4909)	0.0047 (0.5595)	0.1355 (0.3558)	-0.1837 (0.0109)	6.7814 (0.1355)	-0.0061 (0.4416)
Inst Own	0.0701 (0.0007)	0.0886 (0.0003)	0.0234 (0.0000)	-0.0856 (0.0000)	-0.2693 (0.0000)	16.2402 (0.0001)	-0.0244 (0.0000)
Ind. Upturn * Inst Own	0.0512 (0.0653)	0.0524 (0.1150)	-0.0032 (0.6610)	0.0190 (0.0963)	0.2065 (0.0015)	-3.2608 (0.5116)	0.0154 (0.0175)
<i>N</i>	15333	15333	14439	14265	15451	1408	4878
<i>R</i> ²	0.0602	0.0630	0.0408	0.3741	0.0711	0.5888	0.1886
<i>Firm Decisions and Board Size</i>							
Ind. Upturn	0.0722 (0.0029)	0.0789 (0.0032)	0.0040 (0.5555)	-0.0023 (0.8326)	-0.0837 (0.0779)	4.3028 (0.1910)	0.0029 (0.5876)
Board Size	0.0480 (0.0048)	0.0208 (0.2680)	0.0053 (0.2689)	0.0513 (0.0000)	0.0021 (0.9504)	11.9215 (0.0002)	0.0109 (0.0017)
Ind. Upturn * Board Size	-0.0636 (0.0067)	-0.0739 (0.0043)	0.0001 (0.9831)	-0.0390 (0.0002)	0.0005 (0.9912)	-2.0157 (0.6469)	-0.0057 (0.2467)
<i>N</i>	16707	16707	15689	15703	16808	1409	5758
<i>R</i> ²	0.0414	0.0455	0.0381	0.3911	0.0510	0.5852	0.1837
Panel B: MtB Industry Upturns							
<i>Firm Decisions and GIndex</i>							
Ind. Upturn	0.1289 (0.0000)	0.1267 (0.0002)	-0.0129 (0.0776)	-0.0206 (0.0966)	-0.0718 (0.2683)	-1.7794 (0.6782)	-0.0062 (0.3055)
GIndex	0.0048 (0.0025)	0.0024 (0.1937)	0.0011 (0.0072)	-0.0014 (0.0370)	-0.0043 (0.2204)	0.5239 (0.0662)	-0.0008 (0.0088)
Ind. Upturn * GIndex	-0.0122 (0.0000)	-0.0115 (0.0000)	-0.0001 (0.8441)	0.0031 (0.0003)	-0.0008 (0.8630)	0.3675 (0.3034)	0.0001 (0.8200)
<i>N</i>	21575	21575	20348	20278	21760	1791	7606
<i>R</i> ²	0.0622	0.0594	0.0388	0.3822	0.0752	0.5805	0.1795
<i>Firm Decisions and Inst Own</i>							
Ind. Upturn	0.0971 (0.0019)	0.0690 (0.0664)	-0.0145 (0.0769)	0.2187 (0.3418)	-0.1106 (0.1340)	5.6883 (0.2187)	-0.0161 (0.0438)
Inst Own	0.1596 (0.0000)	0.1302 (0.0000)	0.0269 (0.0000)	-0.0925 (0.0000)	-0.1746 (0.0007)	20.1211 (0.0000)	-0.0248 (0.0000)
Ind. Upturn * Inst Own	-0.1171 (0.0001)	-0.0275 (0.4276)	-0.0091 (0.2304)	0.0304 (0.0104)	0.0046 (0.9458)	-10.4073 (0.0410)	0.0143 (0.0299)
<i>N</i>	15333	15333	14439	14265	15451	1408	4878
<i>R</i> ²	0.0644	0.0629	0.0418	0.3739	0.0708	0.5896	0.1892

Table 7. (Continued)

Dependent Variable	1 Asset Growth	2 PPE Growth	3 Acq Ratio	4 SG&A	5 R&D Exp	6 Wages	7 Adv Exp
<i>Firm Decisions and Board Size</i>							
Ind. Upturn	0.0451 (0.0657)	0.0336 (0.2150)	-0.0105 (0.1264)	0.0160 (0.1475)	-0.0228 (0.6353)	-2.1819 (0.5282)	-0.0041 (0.4480)
Board Size	0.0361 (0.0407)	0.0111 (0.5693)	0.0033 (0.5045)	0.0304 (0.0001)	-0.0008 (0.9810)	6.2154 (0.0596)	0.0086 (0.0190)
Ind. Upturn * Board Size	-0.0395 (0.0924)	-0.0524 (0.0438)	0.0037 (0.5811)	0.0034 (0.7415)	0.0080 (0.8633)	9.2091 (0.0363)	-0.0007 (0.8920)
<i>N</i>	16707	16707	15689	15703	16808	1409	5758
<i>R</i> ²	0.0437	0.0441	0.0381	0.3902	0.0507	0.5848	0.1841

Notes: The table provides regression results on the interaction between governance mechanisms and industry-specific conditions and how they relate to firm policy decisions. The firm policies investigated include: asset growth, PPE growth, acquisition ratio, SG&A, wages, R&D, and advertising expenditures. Asset growth is the increase in total assets from the year prior to the current year. PPE growth is the increase in property, plant, and equipment from the year prior to the current year. Acq ratio is the value of all acquisitions made in the current year normalized by the market capitalization in the current year. SG&A denotes selling, general, and administrative expenses normalized by total assets in the current year. Wages denotes the value of labor expenses normalized by number of employees (CPI adjusted). R&D expenses and advertising expenditures are both normalized by sales. Control variables implemented in each regression include book leverage, firm size (log of assets), intangible assets, and the interaction of each of these measures with the industry-state (Ind Upturn). Also, firm age and the Herfindahl index of the industry are present as controls. Industry-specific conditions follow from a ranking classification of the median profitability in each industry over the sample period. An industry upturn classification (Ind Upturn) denotes an industry-year where industry profitability is in the top half over the span of the period. Panel A presents the results where the industry-state is determined by an ROA ranking classification. Panel B presents the results where the industry-state is determined by an MtB ranking classification. The interaction between the industry-state and governance is investigated across our external and internal metrics: GIndex, institutional ownership, and board size. For brevity, only the coefficients on the governance variable of interest and its interaction with the industry state are included. Firm and year fixed effects are included as controls in each regression implemented. In parentheses, the corresponding White (1980) heteroskedasticity-consistent *p*-values are reported.

building” story on the part of firms with weak shareholder rights during upturns. In Column 3, there is no significant relation between shareholder rights and acquisitions over economic states. This finding pervades across all measures of governance. Next, in Columns 5 and 6 it is evident that firms with weak shareholder rights are significantly increasing R&D expenditures and wages during economic upturns. This is generally consistent with the idea that managers in firms with poor shareholder rights are reducing shareholder value by making safe decisions during economic upturns.

Next, turning toward the role of boards and firm policies across states, again we see that large boards appear to have lower asset growth and PPE growth over economic upturns. There is no relation between board size and acquisitions over economic states. This again signals that the agency costs of large boards during economic upturns are not descriptive of an “empire building” story.

Panel B presents the results where the industry-state is defined by MtB. Considering the role of shareholder rights, similar results pervade, yet are slightly weaker than those documented in Panel A. The one exception is that we see firms with weak shareholder rights (high GIndex) spending more on SG&A in upturns — consistent with the “quiet life”. The results associated with board size and policies across economic states are also slightly weaker than those documented in Panel A. Throughout Panel B, no single governance measure is associated with an increase in acquisitions during upturns — a strong indication that aggressive managerial decisions (“empire building”) are not the underlying factor leading to underperformance. In all, the results detailed in Panels A and B concur with the notion that the agency costs which lead to underperformance are most in accordance with a “quiet life” story — managers make safe decisions, increase expenses to avoid conflict with suppliers, and other organizational elements.

3.5. Governance, industry state, and compensation

Aside from differences in firm policy decisions over economic states, managers in different governance regimes may also be subject to varying compensation policies over economic states. While it appears that the underperformance of firms with certain governance mechanisms over economic states is associated with a “quiet life” story, this does not preclude the possibility that managers are also extracting rents (inefficient or excess compensation) as well.

We consider three measures of compensation: total compensation, salary, and equity compensation. Total compensation is the sum of salary, bonus, restricted stock grants, long-term incentive payouts, option grants, and any other forms of compensation. Equity compensation is the value of equity grants (value of restricted stock grants, option grants, and other stock grants) normalized by salary.

Table 8 details the findings associated with both internal and external governance across economic states, where each of the three measures of compensation are treated as the dependent variable across columns. In addition, the two methods of industry-state classification are provided, where

Table 8. Governance, industry state and compensation.

Dependent Variable	ROA Industry Upturns			MtB Industry Upturns		
	1 Total Comp	2 Salary	3 Equity Comp	4 Total Comp	5 Salary	6 Equity Comp
<i>Compensation and GIndex</i>						
Ind. Upturn	271.826 (0.616)	43.846 (0.123)	-0.380 (0.641)	1307.475 (0.018)	37.444 (0.195)	1.514 (0.068)
GIndex	68.217 (0.025)	12.034 (0.000)	-0.027 (0.559)	99.219 (0.001)	12.272 (0.000)	0.040 (0.385)
Ind. Upturn * GIndex	7.642 (0.852)	-3.231 (0.133)	0.099 (0.108)	-53.221 (0.195)	-3.663 (0.088)	-0.034 (0.580)
<i>N</i>	8911	8953	8890	8911	8953	8890
<i>R</i> ²	0.2277	0.3744	0.1228	0.2278	0.3748	0.1223
<i>Compensation and Inst. Own</i>						
Ind. Upturn	902.511 (0.135)	-33.527 (0.279)	0.995 (0.283)	1550.410 (0.012)	2.324 (0.941)	1.273 (0.178)
Inst Own	2151.475 (0.000)	161.960 (0.000)	2.524 (0.000)	2271.052 (0.000)	172.220 (0.000)	2.068 (0.002)
Ind. Upturn * Inst Own	393.627 (0.479)	49.225 (0.084)	-0.100 (0.906)	76.589 (0.894)	21.060 (0.474)	0.849 (0.335)
<i>N</i>	6497	6529	6495	6497	6529	6495
<i>R</i> ²	0.2499	0.4501	0.1117	0.2514	0.4508	0.1120
<i>Compensation and Board Size</i>						
Ind. Upturn	175.457 (0.736)	20.233 (0.438)	0.409 (0.614)	868.783 (0.100)	-3.754 (0.887)	1.577 (0.055)
Board Size	-361.756 (0.296)	21.707 (0.212)	-1.548 (0.004)	-612.837 (0.094)	0.477 (0.979)	-1.012 (0.078)
Ind. Upturn * Board Size	-1199.289 (0.015)	-37.842 (0.126)	-0.282 (0.715)	-611.441 (0.215)	7.221 (0.770)	-1.298 (0.092)
<i>N</i>	6834	6874	6816	6834	6874	6816
<i>R</i> ²	0.1814	0.2946	0.1325	0.1775	0.2925	0.1325

Notes: The table provides regression results on the interaction between governance mechanisms and industry-specific market conditions and how they relate to different elements of compensation. Three measures of compensation are investigated: total compensation, salary, and equity compensation. Total compensation is the sum of salary, bonus, restricted stock grants, long-term incentive payouts, option grants, and any other forms of compensation. Equity compensation is the value of equity grants (value of restricted stock grants, option grants, and other stock grants) normalized by salary. Control variables implemented in each regression include book leverage, firm size (log of assets), intangible assets, size adjusted CEO ownership and the interaction of each of these measures with the industry-state. In addition, CEO turnover firm-years are removed from the sample. Following the existing literature, firm ROA, MtB, change in MtB over the contemporaneous year, standard deviation of ROA, Herfindahl index, and firm age are also used as controls in all regressions. Industry-specific conditions follow from a ranking classification of the median profitability in each industry over the sample period. An industry upturn classification (Ind Upturn) denotes an industry-year where industry profitability is in the top half over the span of the period. The industry-state classification is implemented in two manners, by ROA and MtB. The interaction between the industry-state and governance is investigated across external and internal metrics: GIndex, institutional ownership, and board size. For brevity, only the coefficients on the governance variable of interest and its interaction with the industry state are included. In parentheses, the corresponding White (1980) heteroskedasticity-consistent *p*-values are reported. Industry and year fixed effects are included as controls in each regression.

Columns 1 through 3 present results over ROA defined industry-states and Columns 4 through 6 present results over MtB defined industry-states. For brevity, only the governance variable of interest and its interaction with the industry-state are reported. Control variables implemented in each regression include book leverage, firm size (log of assets), intangible assets, size adjusted CEO ownership and the interaction of each of these measures with the industry-state. In addition, CEO turnover firm-years are removed from the sample. Following the existing literature, firm ROA, MtB, change in MtB over the contemporaneous year, standard deviation of ROA, Herfindahl index, and firm age are also used as controls in all regressions. Industry and year fixed effects are implemented as well.²⁷

First, although not listed in the tables, it is important to note the most significant determinants of compensation. Consistent with prior literature, firm size is the most significant determinant of compensation.²⁸ Following this, prior MtB and contemporaneous change in MtB are the next most significant determinants of total compensation and equity compensation, yet have less explanatory power when considering CEO salary. In addition, CEO ownership has a strong negative association with equity compensation.

The finding in Table 8 pertaining to how CEO compensation relates to the interaction of shareholder rights (GIndex) and the industry-state yields few results. Only when considering the salary of the CEO does a slight effect persist — firms with weak shareholder rights (high GIndex) are allocating less salary compensation during industry upturns. This is not in accordance with a rent extraction argument on the part of managers in poorly governed firms.

Next, institutional ownership is positively related to CEO salary during industry upturns (as defined by ROA), although it is only marginally significant and is not significantly related to other forms of compensation across states. Last, board size is negatively related to total compensation during industry upturns (as defined by ROA). Again, these findings are not strongly indicative of rent extraction since board size is negatively related to performance in industry upturns, and hence rent extraction would be consistent with large boards delivering excess pay in upturns (when such firms are underperforming). In sum, the relationship between internal and external

²⁷Using firm fixed effects does not alter the qualitative nature of the results. Additionally, use of the log transform of total compensation or equity compensation provides equivalent results in a qualitative manner.

²⁸These control variable findings match the documented results of *Core et al. (1999)*.

governance metrics (shareholder rights, institutional ownership, board size), compensation and industry-states is not defined by any significant findings which would indicate rent extraction on the part of the manager.

3.6. *Robustness checks*

3.6.1. *Principal component analysis*

In Table 9, we replicate Tables 5 and 6 using principal component analysis (PCA). The last column in both Tables 5 and 6 included all internal and external governance metrics (GIndex, institutional ownership, board size) simultaneously. If these three variables have an interactive effect in capturing the degree of monitoring intensity facing the CEO, then a new proxy variable, Gov. Factor, can be created using PCA to model this commonality. Gov. Factor is the principal factor considering the information contained in GIndex, institutional ownership, and board size. To give an accurate representation of Gov. Factor we flip all three of these variables: low GIndex captures “Good Governance”, small boards capture “Good Governance” and small aggregate groups of institutional owners captures “Good Governance”. This new proxy (Gov. Factor) serves to capture the common component across internal and external governance measures.

With this new variable Gov. Factor we replicate Tables 5 and 6. The results are similar to those presented in Tables 5 and 6. Across all performance measures (ROA, MtB, Adjusted ROA, and Adjusted MtB) the interaction between Industry Upturn and Gov. Factor (Ind Upturn*Gov. Factor) is positive and statistically significant. This entails that our Gov. Factor measure has pro-cyclical value. Shareholder rights, small boards and small groups of institutional owners are more valuable when the firm goes through an industry upturn as defined by valuation or operating performance.

3.6.2. *Sample period*

Bebchuk *et al.* (2013) show that previously documented correlation between governance indices and abnormal returns during the time frame 1990–1999 subsequently disappears past the year 2000. They attribute this disappearance to market participants’ gradually learning to appreciate the difference between good-governance and poor-governance firms. To ensure that our results are not driven by the earlier years in our sample, we replicate tests using a restricted sample from 2000–2010 and find that our results are as significant as previous material findings (unreported).

Table 9. Governance, industry state and firm profitability.

Dependent Variable	1 ROA	2 MtB	3 Adj. ROA	4 Adj. MtB
Ind. Upturn	0.0385 (0.0000)	0.4467 (0.0000)	0.0042 (0.5881)	0.1552 (0.1026)
Gov. Factor	-0.0035 (0.0165)	0.0236 (0.1966)	-0.0144 (0.0000)	-0.0254 (0.1578)
Ind. Upturn * Gov. Factor	0.0073 (0.0002)	0.0530 (0.0250)	0.0098 (0.0000)	0.0424 (0.0652)
Ind. Upturn * Book Leverage	-0.0406 (0.0000)	-0.3016 (0.0038)	-0.0281 (0.0011)	-0.2320 (0.0256)
Ind. Upturn * Size	-0.0002 (0.2622)	-0.0009 (0.7086)	-0.0002 (0.2408)	-0.0017 (0.4689)
Ind. Upturn * Intangible Assets	0.0010 (0.9164)	0.0015 (0.9890)	0.0008 (0.9268)	-0.0685 (0.5290)
Book Leverage	-0.0281 (0.0000)	-0.9839 (0.0000)	-0.0422 (0.0000)	-1.0411 (0.0000)
Size	0.0004 (0.0057)	0.0051 (0.0034)	0.0003 (0.0330)	0.0052 (0.0026)
Intangible Assets	-0.0969 (0.0000)	0.4721 (0.0000)	-0.0917 (0.0000)	0.5193 (0.0000)
Herfindahl Index	0.0339 (0.1011)	0.3118 (0.2107)	0.0221 (0.2797)	0.2270 (0.3590)
Firm Age	0.0008 (0.0000)	-0.0046 (0.0000)	0.0005 (0.0000)	-0.0063 (0.0000)
<i>N</i>	12222	12209	12222	12209
<i>R</i> ²	0.1236	0.2190	0.2022	0.1069

Notes: The table provides regression results on the interaction between a governance factor and industry-specific market conditions and how they relate to firm profitability. The dependent variables considered include the industry-adjusted profitability (Adj. ROA and Adj. MtB) of the firm and the unadjusted profitability (ROA and MtB) of the firm. The governance factor is the first principal component from a principal component analysis of GIndex, institutional ownership and board size, where all governance variables are lagged by one year. Industry-specific conditions follow from a ranking classification of the median profitability in each industry over the sample period. An industry upturn classification (Ind Upturn) denotes a contemporaneous industry-year where industry profitability is in the top half over the span of the period. Additional controls include firm size (log of assets), book leverage, intangible assets, the Herfindahl index of the industry, and firm age where all controls are lagged by one year. In parentheses, the corresponding White (1980) heteroskedasticity-consistent *p*-values are reported. All columns include intercept, year and industry fixed effects.

3.6.3. Historical measure of governance

One potential concern is that firm-specific performance leads to changes in governance rather than external and internal governance mechanisms affecting firm-specific performance. In Sec. 3.1, we address this concern by

showing the stability of governance mechanisms. In this section, we address the endogeneity concern using an alternative approach. We replicate our main findings after replacing our firm-year measure of external and internal governance with the level of governance that we first observe for each firm in our dataset and find that our results still hold in a qualitative and equally significant (if not more significant) fashion. Fixing the level of governance for a firm using the governance observed in the first year in our data set, and subsequently examining valuation and operating performance implications as industry-economic conditions change, ensures that the valuation and operating performance that we capture does not impact changes in governance mechanisms (held constant).

3.7. *Alternative explanations*

3.7.1. *Earnings management and operating performance*

One critique of our findings with respect to changes in operating performance over economic states is that CEOs in firms with poor internal auditing/governance controls may be engaging in strategic earnings management, managing accruals upwards to increase operating performance during industry economic downturns. For this alternative hypothesis to explain our findings, it would have to be the case that firms with large boards and firms with weak shareholder rights are strategically reporting higher earnings and thus higher operating performance only during industry economic downturns. Not only would these firms have to manipulate earnings to report higher operating performance, but these firms would be reporting numbers that are not only as good as their counterparts (CEOs in firms with small boards or strong shareholder protection), but which actually outperform their peers.

While the accounting and finance literature has established evidence of a negative relation between various governance mechanisms and earnings management in the cross-section (Klein, 2002; Bergstresser and Philippon, 2006; Cornett *et al.*, 2008), there is some evidence that this relation does not hold in the time series, the relevant comparison for our study.²⁹ First, Cheng (2008) finds no consistent evidence that large boards are associated with

²⁹In a recent study, Ali and Zhang (2015) find earnings overstatement is greater during the beginning and ending of a CEO's tenure for CEOs in firms with weak governance, pointing to changing incentives for earnings management over time. While this initial evidence points to strategic earnings management based on a CEO's horizon with a firm, it is unclear whether the horizon incentives that induce earnings management for CEOs at firms with weak governance would also induce strategic earnings management during industry economic downturns.

greater accruals management over time. Second, Zhao and Chen (2008) find that takeover protection is associated with lower levels of abnormal working capital accruals, lower levels of performance-adjusted abnormal accruals, and timelier recognition of losses. Taken together, it seems unlikely that firms with large boards and firms with weak shareholder rights are dynamically impacting operating performance solely through earnings management.

3.7.2. *Systematic risk and risk factors*

One potential explanation for the documented findings that external governance (GIndex) has pro-cyclical value and internal governance (board size) has counter-cyclical value is due to a difference in investor appetite for risk. We examine this channel by looking at the difference in firm betas (calculated as a 36-month rolling beta) over industry-economic fluctuations and governance. We do see a difference in betas, as expected, since firms with low GIndex (small boards) do well in upturns and do poorly in downturns. A consistent interpretation of this finding would indicate that firms with these board features have greater systematic risk. However, given our results for real operating performance, our findings are not purely a reflection of a risk factor explanation. Because we find firms with low GIndex (small boards) have greater accounting performance (as measured by ROA) during industry-ROA upturns, our findings are not solely due to a pricing explanation, and highlight that these firm/board features have a material impact on real production over economic cycles.

4. Conclusion

Our study provides a comprehensive look and extends the current literature on firm-level governance mechanisms to show that the value of both external and internal governance mechanisms fluctuate over industry-specific economic conditions. We construct and test hypotheses to investigate how the value of external governance mechanisms (shareholder rights) and internal governance mechanisms (board size and institutional ownership) shifts over industry-specific economic conditions.

We find evidence that shareholder rights, or the market for corporate control (an external governance mechanism), is most valuable to current shareholders during industry economic upturns, but exhibits no differential benefit during industry economic downturns. This finding highlights that antitakeover protection (weak shareholder rights) is primarily associated with lower firm value in industry upturns. In other words, shareholder rights

operate to constrain the opportunism of management when slack is high (upturns), yet add little value when industry conditions are poor. The agency costs associated with this underperformance are not consistent with an “empire building” hypothesis — managers protected by antitakeover provisions fail to exploit their position in economic upturns by making aggressive decisions such as acquisitions.

Second, we find that internal governance mechanisms (board size and institutional ownership) do not have the same implications for firm value over economic states. For board size, we find that small boards are incrementally more valuable to current shareholders during industry economic upturns. However, this result weakens/reverses during industry economic downturns. Large boards operate most efficiently when slack is minimal (downturns). When economic conditions are good, the coordination costs (moral hazard) within large boards are substantial and the monitoring ability of the board is lacking — hence, small boards are preferred in upturns. Again, the agency costs are not consistent with an “empire building” story; managers subject to the oversight of large boards in economic upturns do not appear to exploit the board member free-riding problem through the implementation of aggressive decisions. No significant rent-extraction in the form of excess managerial compensation manifests across governance-state inefficiencies. Next, using several alternative definitions for institutional ownership, we ultimately find inconclusive evidence in support of institutional ownership having industry economic state dependent valuations.

Our empirical findings contribute to the corporate governance literature in three meaningful ways. First, we extend the literature on firm-level governance mechanisms to show how firm-level governance mechanisms and industry-level economic conditions interact to define the aggregate governance standards present in the firm. Second, we provide new insight on when and how firm-level governance mechanisms operate most effectively to diminish agency problems. Lastly, we document that the association between managerial opportunism and governance over economic states is not consistent with managers destroying value through aggressive decisions when governance inefficiencies persist. In total, the results extend our understanding of the operational effectiveness of governance mechanisms over economic states (Hadlock and Lumer, 1997; Mikkelsen and Partch, 1997; Denis and Kruse, 2000; Cremers and Nair, 2005). In particular, the findings in this paper lend new insight into the operational strength of antitakeover protection, the effectiveness of and incentives facing stakeholders, and the trade-off between moral hazard and monitoring in board structure.

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