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LEARNING AND THE DISAPPEARING ASSOCIATION BETWEEN GOVERNANCE AND RETURNS

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Learning and the Disappearing
Association between Governance and Returns

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Abstract

In an important and influential work, Gompers, Ishii, and Metrick (2003) show that a trading strategy based on an index of 24 governance provisions (G-Index) would have earned abnormal returns during the 1991-1999 period, and this intriguing finding has attracted much attention ever since it was reported. We show that the G-Index (as well as the E-Index based on a subset of the six provisions that matter the most) was no longer associated with abnormal returns during the period of 2000-2008, or any sub-periods within it, and we provide evidence consistent with the hypothesis that the disappearance of the governance-returns association was due to market participants' learning to appreciate the difference between firms scoring well and poorly on the governance indices. Consistent with the learning hypothesis, we document that (i) attention to corporate governance from the media, institutional investors, and researchers has exploded in the beginning of the 2000s and remained on a high level since then, and (ii) until the beginning of the 2000s, but not subsequently, market participants were more positively surprised by the earning announcements of good-governance firms than by those of poor-governance firms. Our results are robust to excluding new economy firms or to focusing solely on firms in non-competitive industries. While the G and E indices could no longer generate abnormal returns in the 2000s, their negative association with Tobin's Q persists and they thus remain valuable tools for researchers, policymakers, and investors.

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1. Introduction

In a seminal paper, Gompers, Ishii and Metrick (2003) (hereinafter GIM) identified a governance-based trading strategy that would have produced abnormal profits during the period 1990-1999. This strategy was based on a G-Index that GIM constructed on the basis of 24 governance provisions that weaken shareholder rights. These intriguing findings have attracted a great deal of attention ever since they were first reported, and the G index (as well as the E index that is based on a subset of these 24 provisions (Bebchuk, Cohen, and Ferrell (2009)) has been extensively used. As of March 2010, the GIM study has about 800 citations on SSRN.

In this paper, we contribute to understanding GIM's celebrated results concerning the association between governance and abnormal returns. We show that the G-Index (as well as the E-Index) was no longer associated with abnormal returns during the period of 2000-2008 (or any sub-periods within it) and we provide evidence consistent with the hypothesis that the disappearance of the governance-returns association was due to market participants' learning to appreciate the difference between well-governed and poorly-governed firms. Our analysis highlights the changes over time in market participants' attention both to corporate governance in general and to differences between good-governance and poor-governance firms, as well as the role that such changes played in incorporating governance into market prices. Our findings are consistent with market learning about the benefits of governance being responsible both for the governance-return association during the 1990s and for its subsequent disappearance.

GIM suggested that governance provisions – or the characteristics of firms' governance and culture that they reflect – are associated with lower firm value and performance. In particular, GIM showed that higher G-Index scores are associated with lower industry-adjusted Q, lower profits, lower sales growth, and more corporate acquisitions. Subsequent work found additional links between the G and E indices and firm performance. For example, Masulis, Wang and Xie (2007) find that worse G-Index and E-Index scores are correlated with worse acquisition decisions (as measured by the stock market returns accompanying acquisition announcements), Dittmar and Mahrt-Smith (2007) finds that worse such scores are correlated with a less valuable use of cash holdings.

That the G-Index and E-Index are associated with lower firm value and worse firm performance, however, does not imply that these indices should be associated with abnormal stock returns. To the extent that market prices already reflect fully the differences between well-

governed and poorly-governed firms, trading on the basis of the governance indices should not be expected to yield abnormal profits.

One possible explanation for the GIM findings is that governance is correlated with some common risk factor that is not captured by the standard four-factor model used by GIM to calculate abnormal returns (Core et al. (2006), Cremers et al. (2009)). Under this explanation, governance can be expected to continue to play a role in cross-sectional regressions of returns as long as the common risk factor correlated with governance continues to have such a role.

An alternative explanation, which was noted by GIM, is that investors in 1990 did not fully appreciate the differences between firms with good and bad governance scores. The legal developments that shaped the significance of the G-Index provisions took place largely during the 1980s, which was also when many of these provisions were adopted. In 1990, investors might not yet have had sufficient experience to be able to forecast the expected difference in performance between well-governed and poorly-governed firms. Under the "learning" hypothesis, the association between governance indices and returns during the 1990s was expected to continue only up to the point at which a sufficient number of market participants would learn to appreciate fully the differences between well-governed and poorly-governed firms. Noting the empirical evidence that lengthy intervals are sometimes necessary even for information that is relatively tangible to be incorporated in prices,[1] GIM suggested that it was not possible at the time of their article to forecast when such a process of price adjustment would be completed.

We begin by documenting that the association between governance and returns did not persist after the period for which it was identified by GIM. Using the exact methods employed by GIM for 1990-1999, we find that this association did not exist during 2000-2008. Indeed, we show that, even though trading based on either the G-Index or E-Index would have produced positive abnormal return during most of the four-year periods beginning sometime during the period 1991-1998, such strategies would not have produced abnormal returns during any four-year period beginning in 1999 or later. Core et al. (2006) noted that the GIM strategy did not

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[1] GIM cited in this connection the evidence that earnings surprises (Bernard and Thomas (1989)), dividend omissions (Michaely, Thaler, and Womack (1995)), and stock repurchases (Ikenberry, Lakonishok, and Vermaelen (1995)) have long-term drift following the event, and noted that all seem to be relatively simple pieces of information compared with governance structures.

produce abnormal returns during the four-year period 2000-2003, but were naturally cautious about drawing inferences from the relatively short period they examined and did not devote much attention to the change or seek to explain it. The robust findings we find for a period of similar length to the one studied by GIM enable us to conclude that the documented governance-returns association did not persist.

Furthermore, our principal contribution is in explaining both the association between governance and returns during the 1990s and its subsequent disappearance. Our paper is the first to focus on post-2000 changes – changes not only in the association between governance and returns but also changes in the attention to governance in general and, in particular, the ability of market participants to appreciate the differences between well-governed and poorly-governed firms. In particular, we provide evidence that is consistent with a learning hypothesis under which it took markets some time to appreciate sufficiently the differences among firms that are well-governed and poorly-governed as reflected in the governance indices. As long as this process was incomplete, but not afterwards, trading based on these differences could produce abnormal returns.

The learning by market participants could have involved – though not necessarily – learning about the significance of the governance provisions. Some market participants might have learned to appreciate that certain governance provisions are associated with how firms are governed. But other market participants might have directly identified that some firms are well-governed without making a connection between their good governance and their governance provisions. Some market participants might even have learned both to appreciate the significance of some governance provisions as well as to directly identify differences between how well-scoring and poorly-scoring (in terms of the governance indices) firms are governed. For our purposes, the learning hypothesis involves market participants, in the aggregate, coming to appreciate the difference between firms that score well and poorly on the governance indices regardless of whether all or some of these participants made use of all the components of the indices themselves.

We begin our investigation of the learning hypothesis by documenting how attention to governance by the media, institutional investors, and academic researchers jumped sharply in the beginning of the 2000s to historically high levels and remained there. The number of media articles about governance, and the number of resolutions about corporate governance submitted by institutional investors (many of which focused on key provisions of the governance indices),

both rose several fold in 2001-2002 and subsequently remained at much higher levels than earlier. Academic research, proxied in any given year both by the number of journal publications on corporate governance and NBER discussion papers in the area, also rose sharply around this point in time, rising steadily from the late 1990s and reaching and staying at levels that were far higher than those prevailing during the 1990s. The GIM paper itself was issued as an NBER discussion paper (and received significant media coverage) in 2001. Given that all of our measures of attention reached very high levels by 2002, we proceed to test the hypothesis that, by the end of 2001, markets had sufficiently absorbed the governance differences reflected in the G-Index and the E-Index.

To do so we examine whether, after 2001, market participants had a better appreciation of the differences between well-governed firms and poorly-governed firms in terms of their expected future profitability. In examining whether markets learned to differentiate better between well-governed and poorly-governed firms when forecasting future profitability, we examine the extent to which markets were differentially surprised by earning announcements as proxied by (i) the abnormal reactions accompanying earning announcements, and (ii) analyst forecast errors. Consistent with the learning hypothesis, we find a marked difference between the 1990-2001 period and the post-2001 period. During the 1990-2001 period, but not during the 2001-2008 period, the earning announcements of good-governance firms were more likely than the earning announcements of poor-governance firms both (i) to be accompanied with more positive abnormal stock returns, and (ii) to produce a meaningful positive surprise relative to the median analyst forecast. Our analysis here extends the work of Core et al. (2006) and Giroud and Mueller (2008), who examined (with mixed results) whether the GIM findings were due to markets' forecasting errors about the difference between good-governance and poor-governance firms, but which did not consider whether such forecasting errors changed over time during the 1990-2008 period.[2]

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[2] While we focus on the differences between 1990-2001 and the period following it, we do not have the data to study how the 1990-2001 period differed from the period preceding it. Cremers and Ferrell (2009) introduce a new dataset of governance provisions from the pre-1990 period and suggest that the association between governance and returns during the pre-1990 period, when legal rules making entrenching provisions more consequential were developed, was especially strong.

We conduct two types of robustness checks. First, to address the concern raised by Core et al. (2006), we examine whether our results continue to hold when new economy firms are excluded. Second, Giroud and Mueller (2008) show that GIM's results were driven by non-competitive industries where the weakness of product market competition makes internal governance more important. We therefore examine whether our findings concerning the differences between the two parts of our sample period continue to hold when we focus solely on firms in non-competitive industries. We find that our findings concerning changes over time – in abnormal returns associated with governance strategies and in the ability of market participants to forecast the differences in expected future earnings between good-governance and poor-governance firms – are robust to excluding new economy firms or to focusing solely on firms in non-competitive industries.

It should be stressed that the disappearance of the association between governance and returns does not undermine the practical significance of the G and E indices for research on corporate governance and corporate finance with data from the 2000s and beyond. To the contrary, the relationship between G and Tobin's Q documented by GIM for 1990-1999, as well as the relationship between E and Tobin's Q documented by Bebchuk, Cohen, and Ferrell for 1990-2003, remained strong throughout 2008 (and, if anything, becomes more significant in the 2002-2008 period). Thus, while governance indices may no longer be able to provide a basis for a profitable trading strategy, they should remain valuable tools for researchers, investors, and policy-makers interested in governance and its relationship with firm performance.

In addition to the literature on governance indices and governance provisions, our paper is related to the large body of asset pricing and behavioral finance literature on the persistence and disappearance of abnormal returns associated with trading strategies based on public information. Trading strategies based on known information that produce risk-adjusted abnormal returns over significant periods of time have sometimes been labeled as "anomalies" (see, e.g., Schwert (2001)). Researchers have paid close attention to the extent to which such "anomalies" have persisted after they were documented by academic research, with some suggesting that it is reasonable to expect anomalies not to persist for long after they are reported (Cochrane (1999)). While classical efficient capital market theory (Fama (1970)) questions whether public information can ever be used to produce abnormal returns, adaptive efficient capital market theory (Daniel and Titman (1999)) suggests that the ability of any trading strategy based on public information to generate risk-adjusted abnormal profits will dissipate over time.

Estimating the future effects of (publicly known) governance provisions (or governance characteristics correlated with them) is far from a straightforward matter and requires not only knowing the public information about the provisions but also plugging it into an appropriate structural model of the firms and their environment. Our evidence is consistent with such factoring taking time to develop and be accurately done. As Brav and Heaton (2002) show, such a pattern is consistent with two models (that are difficult to distinguish empirically): (i) a "rational structure uncertainty" model in which agents were all uncertain in 1990 what structural model to use in order to make rational predictions from available public information, but learnt to do so over time; and (ii) a "behavioral" model in which some rational investors (but not others) were able to draw accurate inferences from governance provisions already in 1990, but "limits on arbitrage" (Shleifer and Vishny (1997)) prevented their information from being fully reflected in prices, and in which, over time, such rational investors grow sufficiently in number and confidence for their information to be factored into market prices.

Our findings have implications for the use of event studies to establish the desirability and value of legal reforms in the corporate governance area. Because theoretical analysis can usually identify both positive and negative effects that such reforms could have and, in any event, cannot tell us much about the effects' magnitude, the sign and magnitude of a given reform's effect cannot be a priori precisely indentified on theoretical grounds, leading researchers to make extensive use of events studies. For example, researchers have conducted event studies of the 2002 passage of SOX and the exchanges' independence requirements (Chhaochharia and Grinstein (2007)), and the passage of antitakeover statutes (Karpoff and Malatesta (1989)).

Our analysis highlights the possibility that, like researchers, market participants cannot forecast with precision the future effects of novel governance arrangements when such reforms are first adopted. Like researchers, market participants may be able to form over time, as they gain experience with the consequences of the adopted arrangements, more accurate estimates of the arrangements' value. To be sure, because market reactions aggregate the initial estimates of a large number of players whose money is at stake, event studies could well provide the best estimate of the adopted arrangements available at the time of their adoption. However, years afterwards, as experience with the arrangements accumulates, researchers and policymakers should not view event study evidence from the time of adoption as providing conclusive and irrefutable evidence about the arrangements' value; experience accumulated since the time of

adoption might lead markets to revise their initial estimates, and researchers and policy-makers should similarly be prepared to use such experience to adjust estimates based on event studies.

The remainder of the paper is organized as follows. Section II documents how the association between governance indices and returns during the 1990-1999 period (as well as sub-periods within it) no longer exists during the subsequent 2000-2008 period (as well as sub-periods within it). Section III analyzes whether the patterns we identify are consistent with the learning hypothesis. Section IV concludes.

2. The Disappearance of the Governance-Returns Association

2. 1. The IIRC Dataset and Summary Statistics

2.1.1 Firms and Governance Indices

Our data sample consists of all the companies included in the eight volumes published by the Investor Responsibility Research Center (IRRC). The volumes were published on the following dates: September, 1990; July, 1993; July, 1995; February, 1998; November, 1999; February, 2002; January, 2004; and January, 2006. We do not use the data in the 2008 RiskMetrics governance volume because it is not comparable with data in the earlier IRRC volumes: In 2007, RiskMetrics acquired IRRC and revamped its data collection methods; consequently, changes were made both in the set of provisions covered and in the definitions of some of the covered provisions. For example, only 18 of the 24 provisions in the G-Index are covered by the 2008 volume of the RiskMetrics governance data.

Each IRRC volume tracks corporate governance provisions for between 1,400 to 2,000 firms. In addition to all the firms belonging to the S&P500, each IRRC volume also covers other firms considered to be important by the IRRC. Following Gompers, Ishii and Metrick (2003) and subsequent work in the literature, we exclude dual-class firms and real estate investment trusts (REITs) because of the unique governance structures and regulations prevailing for these sets of firms.

We construct an annual time series of the G-Index and E-Index following the forward-fill method of Gompers, Ishii, and Metrick (2003): we assume that the governance provisions remain unchanged from the current date of one volume until the current date of the next volume. Data in the last IRRC volume of 2006 are filled to the end of 2008.

We follow the construction of the G-Index (which is based on 24 IRRC provisions) defined by GIM and the construction of the E-Index (which is based on 6 provisions) defined by Bebchuk, Cohen, and Ferrell (2009). Because the provisions in these indices restrict shareholder rights, a high score is viewed as representing worse governance. Following GIM, we define Democracy (G) firms and Dictatorship (G) firms as firms that have especially good governance and especially bad governance, respectively, based on the extremes of the G-Index. In particular, Democracy (G) firms are those whose G-Index score is 5 or lower, and Dictatorship (G) firms are those whose G-Index score is 14 or higher. In an analogous fashion, we create groups of firms whose scores are the very best and the very worst using the E-Index: we define Democracy (E) firms and Dictatorship (E) firms to be those with E-Index scores of 0 and E-Index scores of 5 or more, respectively.

Table I, Panel A reports summary statistics concerning the governance indices. Rows (1)-(4) report a volume-by-volume breakdown of the G and E Index, and the percentage of the firms in each volume that are Democracy or Dictatorship firms using either the G-Index or the E-Index.

2.1.2 Returns on Governance Portfolios

Following GIM, we construct governance portfolios based on holding long Democracy firms and shorting Dictatorship firms. Portfolios are rebalanced at the beginning of each month and governance data is updated whenever information in a new IRRC volume becomes available. The trading strategy is conducted for 220 months from September 1990, the first publication date of IRRC volumes, until December of 2008. We match each firm's monthly governance data with its monthly returns (including dividends) from CRSP, then construct both a market-value-weighted portfolio and an equal-weighted portfolio.

Table I, Panel B reports the average raw (unadjusted for risk) monthly portfolio returns from the four governance trading strategies – value- and equal-weighted, using G-Index and E-Index – between each pair of successive IRRC volumes. These statistics indicate that average monthly portfolio returns are high during the September 1990-December 1999 period examined by GIM, but drop precipitously in the latter half of our sample period (the January 2000-December 2008 period). This pattern holds whether the governance strategy used the G-Index or the E-Index and whether it uses value-weighted or equal-weighted portfolios.

2.2. Governance Indices and Abnormal Stock Returns

The above summary statistics on the raw monthly returns produced by the governance-based strategies do not account for their associations with systematic risks. To test whether the governance based strategies yield risk-adjusted abnormal returns, we follow the method used by Gompers, Ishii, and Metrick (2003) and use the four-factor model based on the three factors of Fama-French (1993) augmented by the momentum factor of Carhart (1997). In particular, we divide the sample period into the two periods 1990-1999 and 2000-2008, where the former matches the period studied by GIM. For each period, we run a regression of monthly portfolio returns on the four-factors. We display the results in Panel A of Table II.

For the first period of 1990-1999, we find economically and statistically significant abnormal returns for all four trading strategies. For example, the value-weighted (equal-weighted) portfolio formed on the G-Index produces average abnormal monthly returns of 72.2 (48.7) basis points, with statistical significance at the 1% (5%) level. Our results replicate those in GIM, who report the value- (equal-) weighted monthly portfolio return over the same period of 72 (45) basis points.

The results for the second period of 2000-2008 are strikingly different. For this period, both the equal and value-weighted portfolios based on the G-Index produce average monthly abnormal returns that are statistically indistinguishable from 0. Similarly, the value-weighted portfolios based on the E-Index produce average monthly abnormal returns that are statistically indistinguishable from 0. The equal-weighted portfolios based on the E-Index still produce a positive return but with weakened significance. Thus, combined with our findings in the raw portfolio returns, the profitability of trading strategies based on the G-Index and the E-Index, either adjusted or unadjusted for risk factors, appears to wane in the 2000s.

As a robustness check, we examine whether the above results, for the 1990s or for the 2000s, are driven by certain sub-periods. To be able to perform tests with a meaningful statistical power, we focus on four-year (48 months) periods. (Results using all three-year sub-periods and all five-year sub-periods are similar). In particular, we examine all fifteen 4-year (48 month) sub-periods starting in January of each calendar year, from 1991 to 2005. Panel B of Table II displays the results.

The results indicate that there is a marked difference between the eight 4-year sub-periods beginning earlier than 1999 and the seven 4-year sub-periods beginning in 1999 or later. For periods beginning prior to 1999, the governance-based strategies generate positive and

statistically significant returns in all or many of these periods: the value-weighted E-based strategy produces a positive average abnormal monthly return in all the eight sub-periods beginning prior to 1999; the equal-weighted E-based strategy produces such a return in seven sub-periods; the value-weighted E-based strategy produces such a return in five sub-periods, and the equal-weighted E-based strategy produces such a return in four sub-periods. By contrast, the results for sub-periods beginning in 1999 or later are strikingly different: <u>none</u> of the four governance strategies produce a statistically significant positive return in <u>any</u> of the seven 4-year periods beginning in 1999 or later.

In Figure I, we plot the cumulative abnormal returns using the 4-year sub-period average monthly abnormal returns. For each year, we annualize abnormal returns estimated using data over the next four years, and cumulate the annualized abnormal returns from 1991 to 2008. This graphical representation of Panel B of Table III shows that, for all four governance strategies, the cumulative excess returns are monotonically increasing during the 1990s and subsequently flatten until the end of our sample period.

Panel C of Table II displays the performance of the governance strategies for the period 1990-2008 as a whole. Consistent with the picture emerging from Figure I, three of the four governance strategies produce positive and significant (at the 99% confidence level) average monthly abnormal returns over the entire period. However, as Panels A and B of Table II (as well as Figure I) indicate, this performance of the governance strategies is generated entirely during the 1990-1999 period, after which these strategies produce returns that are indistinguishable from zero.

3. Investigating the Disappearance of the Governance-Returns Association

3.1 The Learning Hypothesis

The preceding analysis has shown that, even though the governance trading strategies produced abnormal returns during the 1990s, they no longer did so during the 2000s. Thus, what is necessary is an explanation that could account both for (i) the existence of abnormal returns during the 1990s, and (ii) their subsequent disappearance.

In seeking to explain the observed pattern, it is important to note that, during the 1990s, or at least since 1995, there were no new legal developments that changed the significance of

governance provisions in place and could by themselves produce abnormal returns associated with these provisions. During the 1980s, the Delaware courts issued rulings, culminating with the Delaware Supreme Court's 1990 decision in *Paramount Communications v. Time, Inc.*, expanding the power of boards to use governance provisions to "just say no" to acquisition offers they view as undesirable. One could perhaps view the 1995 *Unitrin* decision of the Delaware Supreme Court as clarifying the board's power to just say no, but even in such a case there can be little disagreement that there were no subsequent legal changes during the 1990s, and it is thus difficult to explain the abnormal returns associated with the G-Index and the E-Index during the 4-year periods of 1996-2000, 1997-2001, and 1998-2002 as the product of legal changes.

For this reason, GIM and subsequent work viewed the association between the G-Index and returns identified by GIM for the 1990s as being due to (i) an association between governance and a common risk factor that is not captured by the four-factor model, or (ii) an inability by market participants in 1990, facing a landscape of provisions and applicable rules that had substantially evolved and changed during the 1980s, to forecast accurately the significance of governance for the expected future performance of firms.[3] Our finding that the identified association did not persist after the 1990s raises the question of whether any of the two explanations offered for the existence of the associations during the 1990s could also explain the subsequent disappearance of the association.

In this section, we investigate the possibility that the observed pattern is due to explanation (ii). In particular, under the learning hypothesis that we investigate below, market prices in the 1990s had not yet precisely priced the expected effects of the differences between well-governed and poorly-governed firms on future profitability, but over time a sufficient number of market participants have learned to appreciate the significance of these differences, making trading on the basis of such differences no longer profitable.

The learning hypothesis accepts that it might have been difficult for market participants to forecast precisely how governance provisions would overall affect the future performance of firms. This overall effect combines many effects, some of which go in opposite directions, which in turn depend on how provisions interact with each other and with legal rules. Forecasting this

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[3] Explanation (i) was favored by Core et al. (2006) and Cremers et al. (2009). Explanation (ii) seems to have been favored by GIM.

overall effect on *a priori* theoretical grounds was clearly difficult. Furthermore, even assuming that some arbitrageurs of superior ability were able to make precise predictions in this connection, their activities might not have been sufficient to get the market prices of IRRC firms to fully reflect their forecasts: the firms in the IRRC universe represent the lion's share of the US capital markets, and there are limits to the amount of capital any arbitrageur can commit to a given long-term trading strategy (Shleifer and Vishny (1990)).

While market prices in 1990 might not have reflected a precise forecast of the differences between good-governance and poor-governance firms in terms of future performance, market participants might have gained over time a better appreciation of these differences. Under the learning hypothesis, the association between the governance indices and abnormal returns ceases to exist once market participants with sufficient capital have gained sufficient appreciation of these differences for market prices to reflect such appreciation, which in turn makes it no longer possible to profit by trading on the basis of the governance indices.

In this section we explore the possibility that the learning hypothesis can explain both the association between governance indices and returns and its subsequent disappearance. We first document the big jump occurring in the beginning of the 2000s in the attention paid to governance by a broad range of players – the media, institutional investors, and academic researchers (section 3.2). With this in mind, we then revisit our results on abnormal returns (section 3.3). Subsequently, to examine whether market participants made governance-related expectational errors during the learning period but not afterwards, we examine market reactions to earning announcements (section 3.4) as well as analyst surprises by such announcements (section 3.5). We next verify that our results are robust to excluding new economy firms or firms from competitive industries (section 3.6). We conclude by documenting that (consistent with the learning hypothesis) the relationship between governance and Tobin's Q persists after 2001 (section 3.7).

3.2 The Jump in Attention to Governance

We begin by looking at several quantitative measures that reflect the evolution over time in the attention paid to governance by participants in the market and the environment in which it operates. Below we examine in turn the attention paid to governance by the media, institutional investors, and academic researchers. In all cases, we find that the level of attention rose in the

beginning of the 2000s to levels much higher than those of the 1990s and subsequently remained high until the end of our sample period.

3.2.1 The Media

We begin by looking at references in the media to corporate governance. Media references to and coverage of corporate governance may be relevant for two reasons: greater attention by journalists to governance issues may be a mechanism for information diffusion, influencing market participants and leading them to pay more attention to such issues; and, given that journalists talk with and write for market participants, the media coverage may also partly reflect (rather than bring about) a greater interest in these issue on the part of market participants.

To obtain a quantitative proxy for the media interest in governance, we search through Lexis-Lexis Academic and tally, in each calendar year, the number of unique newspaper articles, wires, and publications that reference the word "corporate governance." Figure II(A) graphs three time series representing the number of governance-related articles from three sets of media sources – (i) major world publications, (ii) U.S. newspapers and wires, and (iii) a selected number of widely followed newspapers, namely, USA Today, NYTimes, Washington Post, and the Financial Times. In each series we normalize the number of articles and publications by their 1990 values. All three series exhibit a slow, gradual increase during the 1990s, then a steep jump from 2001 to 2002, with interest subsequently remaining at a level much higher than during the 1990s.

3.2.2 Institutional Investors

We collect the total number of corporate governance shareholder resolutions submitted by institutional investors in each proxy season since 1990 from the annual proxy season reviews of Georgeson Shareholder; all values are normalized by the 1990 counts. We plot the time series in Figure II(B).

Here we see that the incidence of such shareholder proposals fluctuates between 1990 and 2002, rising steeply in the 2003 proxy season and subsequently remaining at levels that are substantially higher than those prevailing prior to the sharp rise. Because shareholder proposals need to be submitted substantially early in advance of the shareholder meeting, proposals for the proxy season of 2003 were largely submitted in 2002. Thus, Figure II(B) reflects a sharp rise in

attention given to corporate governance already taking place in 2002, in the form of a rising tendency of institutional investors to submit corporate governance proposals.

Indeed, (Georgeson (2003)) lists all the corporate governance proposals submitted by institutional investors for vote during the 2003 proxy season, and a review of this list reveals that some of the most common types of proposals, and the ones attracting most support from shareholders in shareholder votes, were ones focusing on key provisions of the E-Index and the G-Index. In particular, a substantial fraction of all the corporate governance proposals submitted by institutions and voted upon during the 2003 proxy season concerned staggered boards, poison pills, or golden parachutes – all elements of the E-Index (as well, of course, as of the broader G-Index). Furthermore, each of these three types of proposals attracted on average a majority of the votes cast by shareholders.

3.2.3 Academic Research

We next look at the attention paid to governance by academic researchers. Academic research can provide market participants with ideas and findings that are directly relevant to the choices they make, and it can also influence the choice of issues to which they pay attention.

We first search through various social science databases via Business Source Complete, which covers over 1300 business-related academic journals, magazines, and trade publications[4], to enumerate the number of academic journal articles published from 1990 to 2008 that reference the term "corporate governance" in the abstract or in author-supplied-keywords. Figure III(A) plots two time series, one (solid line) showing the total number of academic journal papers referencing "corporate governance" in the abstract or keyword, and the other (dashed line) normalizes the first series by the total number of academic papers in the databases that we search through in each year. Both series exhibit the same time-series pattern: there is a monotonic and gradual increase in the number of corporate governance papers from 1990 to 2001, a very sharp increase in the number of papers between 2001 and 2003, followed by a subsequent leveling off that keeps the number of papers each year at a much higher level than during the 2001-2003 sharp rise.

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[4] For a list of journals included, see http://www.ebscohost.com/titleLists/bth-journals.htm

Academic papers are often published a significant time after they are written and first circulated (as most academic readers of this paper probably painfully recognize). Researchers affiliated with the NBER issue and circulate completed studies in this form, often significantly before their papers are published. We therefore look at the NBER working paper database and search for a number of newly issued working papers that reference the term "corporate governance." Figure III(B) reports in time series the number of new governance-related working papers that are posted on the NBER working paper database in each year; the solid line plots the total number of governance related working papers, and the dotted line normalizes the number of corporate governance working papers by the total number of working papers posted on the NBER database in each year. Both series reveal identical time trends, showing that research on corporate governance rose sharply from 1998 to 2004, and that it remained subsequently at a much higher level than prior to its sharp rise from 1998 to 2004.

Overall, we see that the attention paid by academic researchers to governance has risen considerably around the 2001-2002 period in which interest from non-academics (the media and institutional investors) rose sharply. The substantial increase in the level of academic interest was spread over a somewhat longer period, starting to climb even before the jump in attention by the media and institutions, and continued climbing a bit after this jump.

Finally, it is worth noting the timing of the GIM study itself. The study was issued as an NBER discussion paper on August 2001, and its findings were already noted by the media in the fall of 2001. The *New York Times* dedicated its trading strategies column, and the *Financial Times* dedicated its Global Investing column, to reporting about the abnormal returns associated with GIM's governance strategies.[5]

3.2.4 Back to the Learning Hypothesis

We have documented above that the attention paid to governance by both the media and institutional investors rose sharply in 2002. Interest by academics had been already rising for several years by then, and continued rising during this period (as well as a bit afterwards). The

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[5] See Alison Beard, "Shareholder-Friendly Companies Outperform," *Financial Times*, November 9, 2001; Mark Hulbert, "Who Best Protects Shareholders? The Shareholders," *New York Times*, November 4, 2001.

sharp rise in attention to governance from the media and institutional investors might have been due to the "shock" created by the governance scandals of Enron, Worldcom and others, and to the accompanying governance reforms (SOX and the new listing requirements). The preceding and accompanying rise in academic research on the subject might have further contributed to the increased attention to governance. Whatever are the reasons for the increased attention to governance, the patterns displayed above make it clear that among media journalists, institutional investors, and academic researchers, the levels of interest in governance from at least 2002 on were considerably higher than those prevailing during most of the 1990s.

With any learning process, there is no reason to expect that it ever reaches a point in which <u>all</u> market participants recognize the significance of certain factors. What is important is its reaching a point in which profits from trading based on this factor are no longer possible because a sufficient number of market players with sufficient capital have recognized the issue. Given that we have documented that the level of interest in governance in several important sets of players reached historically high levels by 2002, we test below the hypothesis that, by the end of 2001, sufficient learning had taken place for market prices to internalize the significance of governance sufficiently for abnormal profits based on the governance indices to be no longer possible. We find below evidence that is consistent with this hypothesis.

3.3 Learning about Governance: Revisiting Abnormal Returns

We first revisit the abnormal returns to corporate governance trading strategies described in Section 2.2, and test the hypothesis that sufficient learning about the significance of governance occurred by the end of 2001, by examining and comparing the abnormal returns to governance portfolios for the 1991-2001 period and the post-2001 period of 2002-2008. To test this hypothesis we again run regressions of the monthly returns of each governance strategy on the four factors, but this time add a time dummy, labeled "POST," indicating whether the time period is after 2001:

$$r_t = \alpha + POST_t + \beta_1 \cdot MktRf_t + \beta_2 \cdot SMB_t + \beta_2 \cdot HML_t + \beta_3 \cdot Carhart_t + \varepsilon_t \qquad (1)$$

Columns (1)-(4) of Table III report the estimation results of regression (1) using monthly returns from value-weighted and equal-weighted portfolios formed by going long the Democracy portfolio and short the Dictatorship portfolio based on the G-Index and the E-Index.

We find that all four trading strategies produce an average monthly alpha that is economically and statistically significant (at the 5% level) during the period 1990-2001. For our purposes, what is of special interest is the sum of the Alpha and POST variables, which reflects the post-2001 average monthly alpha. In all the columns, applying an F-test to the sum of the Alpha variable and the POST variable shows that, for the period 2002-2008, none of the four portfolios produces abnormal returns that are statistically different from 0. Specifically, the G-Index (E-Index) value-weighted portfolio produces 60.7 (99) basis points in the pre-period; the difference in the post-period abnormal monthly returns is very close in magnitude and statistically significant at the 5% (1%) level at -81.2 (-99.9) basis points, resulting in a post-period abnormal monthly return that is statistically no different from zero. The G-Index (E-Index) equal-weighted portfolio produces abnormal monthly returns of 48 (59.1) basis points in the pre-period which is statistically significant at the 5% (1%) level; F-test results show again that abnormal returns in the post-2001 period are not statistically different from zero.

In untabulated results we also estimate a fully interacted model, i.e. each variable including the constant is interacted with the post-2001 dummy, which allows the portfolio loadings on the four factors to differ between the pre- and post-2001 periods. Results from the fully interacted model are qualitatively and statistically similar to those presented here.

3.4 Market Reactions to Earnings Announcements

Following the approach introduced by LaPorta et al (1997) for testing for markets' failure to forecast differences in future profitability among firms, we turn to examine market reactions to earnings announcements both during 1990-2001 and during 2002-2008. To the extent that market participants did not during the first period fully appreciate differences between well-governed and poorly-governed firms, the market's expectation of future earnings should be expected not to have given sufficient weight to the difference between good-governance and poor-governance firms. Accordingly, during the 1990-2001 period, the market could be expected to be more positively surprised by the earning announcements of good-governance firms than by those of poor-governance firms. In contrast, to the extent that market participants in the aggregate had by the end of 2001 sufficiently learned to appreciate the difference between good-governance and poor-governance firms, we should see during the post-2001 period no association between governance indices and market surprises around earnings announcements.

We construct a dataset of quarterly earnings announcements data for firms in the IRRC dataset. Earnings announcements are obtained from I/B/E/S, for which we require each announcement to have at least one analyst forecast 30 days prior to the announcement, to have coverage in Compustat, and have returns data in CRSP. The resulting sample includes 91,101 earnings announcements from September 1990 to December 2008. Announcement dates are obtained by combining I/B/E/S and Compustat; following DellaVigna and Pollet (2009), in cases where I/B/E/S and Compustat announcement dates differ, we assign the announcement date to be the earlier of the two dates.[6]

Around these announcement dates we compute stock returns. Following prior work (see, for example, Core et al. (2006)), we consider the following earnings announcement return windows: from 20, 10, 5, 3, and 1 trading days prior to the earnings announcement until 1 day after the announcement. In addition to raw returns, we also calculate risk-adjusted excess returns as described below.

Following Giroud and Mueller (2008), we exclude from our regressions firms that are followed by less than 5 analysts. Firms in the IRRC dataset are covered on average by 9 analysts, and the excluded firms constitute less than 4.7% of the total market capitalization of IRRC firms. Firms followed by a significant number of analysts are the ones that attract significant attention from market participants and thus those with respect to which learning is more likely to occur. Our results continues to hold, but their statistical significance weakens somewhat, if we include firms that are followed by less than five analysts.

We begin by regressing returns accompanying earning announcements on a governance index, the POST variable indicating whether the observation is from the post-2001 period, and an interaction of the governance index with the POST variable:

$$r_i(t-\tau, t+1) = \alpha + \beta_1 \cdot Index_{it} + \beta_2 \cdot POST_t + \beta_3 \cdot Index_{it} \times POST_t + \varepsilon_{it} \text{ for } \tau \in \{1,3,5,10,20\} \quad (2)$$

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[6] Searching through Lexis-Nexis for the actual announcement date in the PR newswires, DellaVigna and Pollet (2009) find that the reported announcement date often reflects the date of publication in the *Wall Street Journal*, which may occur later than the actual announcement. In cases of disagreement among I/B/E/S and Compustat, the earlier date tends to be the correct one, while the latter date tends to reflect the *WSJ* publication date.

Under the learning hypothesis we are testing, we expect to see i) higher returns around the announcements of good-governance firms during 1990-2001 ($\beta_1 < 0$), and ii) no association between governance and announcement returns during the post-2001 period ($\beta_1 + \beta_3 = 0$).

Columns (1)-(5) of Table IV Panel A (B) report pooled OLS estimation results using the G-Index (E-Index). Each column looks at returns in one of the five windows of different lengths we examine. To account for possible autocorrelation in quarterly earnings surprises (e.g., see Bernard and Thomas (1989) and (1990)), we report Newey-West (1987) heteroskedasticicity and autocorrelation robust standard errors, using a four quarter lag.

In all ten regressions, we find that the coefficient of the governance index used is negative and statistically significant (at 99% significance in eight out of the ten regressions). Thus, whether using the G or E Index, and whatever window around the earning announcement is used, the evidence is consistent with the hypothesis that market participants were more positively surprised by the earning announcements of good-governance firms than by the announcements of poor-governance firms during the period 1990-2001.[7]

Furthermore, in all ten regressions, the coefficient of the interaction term between the POST variable and the governance index used is positive and significant (at 99% significance in nine out of the ten regressions). This evidence is consistent with a post-2001 erosion in the differential between good-governance and poor-governance firms in terms of generating positive market surprises by earning announcements.

Furthermore, in most of the regressions, the coefficient of the interaction terms is similar in magnitude to the coefficient on the governance index used in the regressions. In nine of the ten regressions, F-test results show that the relationship between governance and earnings surprises post-2001, $\beta_1 + \beta_3$, is statistically no different from 0. Thus, the evidence is consistent with the hypothesis that, by the end of 2001, the market had developed sufficiently accurate expectations for how differences between good-governance and poor-governance firms can be expected to manifest themselves in earning announcements.

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[7] Examining the difference during 1990-1999 between the returns accompanying earning announcements of good-governance firms and those of poor-governance firms, Core et al. (2006) obtain findings with the same sign as ours but without statistical significance. Unlike our analysis, their analysis aggregates all the returns accompanying earning announcements of firms with a given G-Index score (which reduces statistical power) and does not exclude firms followed by less than 5 analysts.

As a robustness check, we re-run all of the regressions using as a dependent variable the risk-adjusted excess return in our various announcement windows rather than the raw return. Specifically, we estimate each firm's loadings on the Fama-French (1993) three factors using data from 20 to 210 trading days prior to the announcement date. Using each firm's estimated factor sensitivities, we risk-adjust returns around announcement as follows:[8]

$$r_i^e\left(t-\tau,t+1\right)=r_i\left(t-\tau,t+1\right)-\left(\hat{\beta}_{i,mktrf}\,r_{mktrf}\left(t-\tau,t+1\right)+\hat{\beta}_{i,smb}\,r_{smb}\left(t-\tau,t+1\right)+\hat{\beta}_{i,hml}\,r_{hml}\left(t-\tau,t+1\right)\right)$$

$$for\ \tau \in \{1,3,5,10,20\}$$

$$(3)$$

Columns (6)-(10) of Table IV Panel A (B) report the results of the regressions using the G-Index (E-Index). Our results are largely consistent with those obtained using the raw returns. In particular, the coefficient of the governance index is negative in all ten regressions and statistically significant in nine of them (at the 99% level in six of them); moreover, the coefficient of the interaction term is positive in all ten regressions and statistically significant in nine of them. Furthermore, this coefficient is similar in magnitude to that of the governance index used, and F-tests indicate that, in eight of the ten regressions, $\beta_1 + \beta_3$ is not statistically different from 0, consistent with the possibility that markets were not differentially surprised by good-governance and poor-governance firms after 2001.

For robustness, we conduct further tests focusing on differences between firms with the best and worst governance scores, that is, firms in the Democracy and Dictatorship portfolios defined earlier. Table V reports estimation results of regressions that are similar to those reported in Table IV but that limit the universe of firms to Democracy and Dictatorship firms and replace the governance indexes used earlier with the DEMOCRACY dummy, indicating whether the firm belongs to the Democracy portfolio. We thus test whether $\beta_1 > 0$ and $\beta_1 + \beta_3 = 0$ in the following specification:

$$r_i\left(t-\tau,t+1\right)=\alpha+\beta_1\cdot DEMO_{it}+\beta_2\cdot POST_t+\beta_3\cdot DEMO_{it}\times POST_t+\varepsilon_{it}\ \text{for }\tau \in \{1,3,5,10,20\}\quad(4)$$

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[8] Including the intercept term and compounding the returns does not alter our results.

The organization of Table V follows the format of Table IV and the results are similar. The coefficient of DEMOCRACY is negative in all regressions and statistically significant in most of them, consistent with the market being more positively surprised by the earning announcements of Democracy firms than by those of Dictatorship firms during 1990-2001. At the same time, F-tests show that in all regression specifications $\beta_1 + \beta_3$ is not statistically significant from 0, consistent with market participants' no longer being differentially surprised by those two types of firms after 2001. In sum, our findings in Table V, as well as the preceding Table IV, are consistent with the learning hypothesis that (i) during 1990-2001 the market did not fully absorb the significance of the provisions in the governance indices and was consequently more positively surprised by the earning announcements of good-governance firms than by those of poor-governance firms, and (ii) after 2001, market participants sufficiently recognized the difference between good-governance and bad-governance firms so that they were not differentially surprised by the earning announcements of these different types of firms.

3.5 Analyst Forecast Surprises

If the market was more likely to be positively surprised by the earnings announcements of some firms, one might also wonder whether analysts were also more positively surprised by the announcements of such firms. Because there is evidence indicating that the I/B/E/S data on analysts may not be fully reliable (see, e.g., Ljungqvist et al. (2008)), and because stock prices and stock prices over time are determined by market participants in the aggregate rather than analysts, we believe that tests based on differences between earning announcements and analyst forecasts are likely to be less telling than tests based on market reactions reflected in stock returns. Nonetheless, we complement our analysis of such market reactions with an analysis of the relationship between analyst surprises and governance scores in different periods.

We use data about analyst forecasts from I/B/E/S as in the previous section, and we again exclude firms that are followed by fewer than three analysts. We continue to use quarterly earning announcements, and match them with the corresponding analyst forecasts. We define "consensus forecasted earning" as the median analyst forecast on the closest date prior to the last day of the fiscal period, and define the variable "SURPRISE" as equal to the actual earnings announced by a firm minus the consensus forecasted earnings divided by the stock price 5 days prior to the announcement date.

Since this variable can be quite noisy, we follow the approach of Campbell, Lo, and McKinley (1997) and use discretized variables that take three values depending on whether there is a meaningful positive surprise, a meaningful negative surprise, or no meaningful surprise. First, we use NEWS1, which takes on 3 values representing good/no/bad news: it is equal to 1 if SURPRISE is greater than 5%, is equal to 0 if SURPRISE is between -5% to 5%, and is equal to -1 if SURPRISE is less than -5%. Second, we use NEWS2, which also takes on 3 values representing good/no/bad news: NEWS2 is equal to 1 if SURPRISE is greater than 10%, 0 if SURPRISE is between -10% to 10%, and is equal to -1 if SURPRISE is less than -10%.

For each of the NEWS1 and NEWS2 variables, we estimate an ordered probit using as explanatory variables a governance variable (E-Index, G-Index, DEMOCRACY(G) or DEMOCRACY (E)), the POST variable for observations after 2001, and an interaction of the governance variable and the POST variable. Results of the ordered probit estimation are reported in Table VI.

In general, we find evidence that is consistent with the findings in Tables IV and V based on surprises captured in market reactions to earning announcements. Specifically, we find that better-governed firms are more likely to have good surprises (positive news), and vice versa. The coefficients of the governance variables are negative in all regressions, and statistically significant in six out of the eight regressions. This finding is consistent with the possibility that, during the 1990-2001 period, earning announcements of good-governance firms were more likely to represent a meaningful positive surprise relative to analyst forecasts than the announcements of poor-governance firms.[9]

Furthermore, examining the sum of the coefficient of the governance variable and the variable interacting governance with POST, F-tests indicate that in most regressions the

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[9] Examining the difference between good-governance firms and poor-governance firms in terms of analyst surprises during 1990-1999, Core et al. (2006) obtain findings with the same sign as ours but without statistical significance. Unlike our analysis, their analysis does not focus just on meaningful surprises (which we do by using discretized variables following Campbell, Lo, and MacKinley (1997), does not exclude firms followed by less than 5 analysts, uses the annual analyst forecasts rather than the quarterly forecasts which we use, and does not use data about analyst surprises after 1999. Giroud and Mueller (2008), excluding firms followed by less than 5 analysts, obtain results consistent with those we obtain for the 1990-2001 period. None of these studies considers differences between the period before and after the end of 2001, which is the focus of our analysis in this subsection.

associations between surprises and governance is statistically no different from 0 in the post-2001 period. This is consistent with the possibility that, after 2001, good-governance firms were no longer more likely to generate meaningful analyst surprises than poor-governance firms.

Thus, as with market surprises around earnings announcements, the evidence discussed in this section is also consistent with the hypothesis that, by the end of 2001, market players have internalized the difference between good-governance and poor-governance firms (as those firms are defined by the governance indices).

3.6 Robustness Checks: Excluding New Economy Firms and Competitive Industries

Our results through this Section have been consistent with the existence of differences between the 1990-2001 period and the 2002-2008 period. We now turn to examine whether our findings are robust to excluding two types of firms.

First, Core et al. (2006) suggest that GIM's results might have been partly driven by new economy firms. It might similarly be asked whether the differences we identify between the two periods are partly driven by the new economy firms which fared so differently in these two periods. To examine this possibility, we repeat all of our tests after excluding new economy firms. We use the classification of new economy firms used by Murphy (2003) (who in turn followed the approach of Anderson et al. (2000)). In untabulated results, we also repeat all our tests excluding new economy firms as classified by Hand (2003) (a classification which excludes fewer firms), and we obtain similar results.

Second, Giroud and Mueller (2008) report that GIM's results were driven by firms in non-competitive industries, where the lack of product market competition makes internal governance especially important. They suggest that the benefits of governance which were unappreciated by investors in 1990 were concentrated in such firms. Accordingly, it might be asked whether the patterns consistent with learning that we identify continue to hold when one focuses solely on firms in non-competitive industries.

In examining this question, we follow Giroud and Mueller (2008). In particular, we use the 48 industry classifications of Fama and French (1997), and we compute, for each firm in each fiscal year and industry, the Herfindahl index, defined to be the sum of squared market shares:

$$HHI_{kt} \equiv \sum_{i=1}^{N_k} s_{ikt}^2 \tag{5}$$

where s_{ikt} is the market share of firm i in industry j in year t, and market shares are defined using sales. The computation of HHI requires the entire Compustat universe; however, in our tests we define terciles of HHI in a given point in time among firms in the democracy and dictatorship portfolios, respectively. That is, in a given point in time we divide the Democracy and Dictatorship portfolios into three equal-sized portfolios based on terciles of HHI, following Giroud and Mueller (2008); to test whether our results hold for the firms in the least competitive firms, we remove the lowest tercile and the lowest two terciles of firms from the Democracy and Dictatorship portfolios respectively.

Table VII displays the results of the robustness tests we conducted. Panel A of Table VII conducts robustness tests for our results on abnormal returns (Table IV). We find that by excluding new economy firms or firms in more competitive industries, we still obtain consistent and persistent evidence that after 2001 there is a statistically and economically significant decline in the abnormal returns generated by trading on corporate governance indices. For each of the three cuts of the data (excluding new economy firms, excluding the lowest HHI tercile firms among the Democracy and Dictatorship portfolio firms respectively, and excluding the lowest two HHI tercile firms among the Democracy and Dictatorship portfolio firms respectively), we consider abnormal returns from going long(short) on Democracy(Dictatorship) firms, defined by E and G, both using market-value-weighted and equal-weighted portfolios. Altogether, we conduct in this way a total of 3x2x2 = 12 robustness tests. In 11 of the 12 tests of Panel A, we find statistically significant average monthly abnormal returns from 1990 to 2001. Moreover, in all the 12 tests of Panel A, F-tests indicate that after 2001 average abnormal returns are statistically indistinguishable from 0.

Panel B of Table VII conducts robustness tests for our results relating earnings announcement returns to governance indices (Table V). While we only report results from a window of five trading days prior to until one day after the earnings announcement date, robustness tests using all other windows considered in Table V are similar. For each of the three cuts of data and for Democracy(Dictatorship) definitions based on G and E, we consider raw returns as well as returns in excess of Fama-French three factors, totaling 3x2x2 = 12 robustness tests. All 12 robustness tests in Panel B of Table VIII indicate that the market is more positively surprised by good-governance firms than bad-governance firms during the period 1990-2001. Moreover, in all 12 tests we find that, after 2001, there is no statistically significant difference in

the market's reaction around earnings announcements of good-governance versus bad-governance firms.

Finally, Panel C of Table VII conducts robustness tests for our results relating analyst surprises to governance indices (Table VI). Here, we re-run the regressions of Table VI for each of the three cuts of the data, for Democracy(Dictatorship) firms based on G and E definitions, as well as the two news variables (NEWS1 and NEWS2) used in Table VI, totaling 3x2x2 = 12 robustness tests. In all 12 tests we find that analysts are more likely to be positively surprised by good-governance firms during the period 1990-2001, though only 7 of the 12 tests show statistical significance at the 5% level. On the other hand, after 2001, this relationship no longer holds in 11 of the 12 robustness tests.

We thus conclude that our results concerning the differences between the 1990-2001 period and the 2002-2008 period – in terms of the abnormal returns associated with trading strategies based on the G and E indices, of how good-governance and poor-governance firms differed in the abnormal returns accompanying earning announcements, and of how these two types of firms varied in producing positive analyst surprises – are robust both to excluding new economy firms and focusing solely on firms in non-competitive industries.

3.7 The Persistence of the Association between Governance and Tobin's Q

That governance indices were no longer associated with abnormal returns during the post-2001 period does not imply that these indices were also no longer associated with firm value and performance during this period. We therefore turn to examine whether the association between the governance indices and firm value documented by prior work has persisted during the 2001-2008 period.

Tobin's Q has long been used in the governance literature as a key measure of firm value and performance.[10] Gompers, Ishii and Metrick (2003) report a strong and negative association between the G-Index and Tobin's Q from 1990 to 1999. Bebchuk, Cohen, and Ferrell (2009) find a strong and negative association between the E-Index and Tobin's Q from 1992 to 2002. We

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[10] See, e.g., Demsetz and Lehn (1985), Morck et al. (1988), McConnell and Servaes (1990), Lang and Stulz (1994), and LaPorta et al (2002).

check below whether the negative association between these indices and Tobin's Q persisted in later years.

Following prior work, we use the definition of Tobin's Q in Kaplan and Zingales (1997), who define Tobin's Q as the market value of assets divided by the book value of assets plus the market value of common stock less the sum of book value of common stock and balance sheet deferred taxes. For our analyses of firm value, we use the log of industry-median adjusted Tobin's Q, defined as the log of a firm's Q divided by the industry's median Q, where we use two-digit SIC code industry definitions.

We run annual regressions of industry-adjusted Tobin's Q on the governance indices, and include standard controls obtained from Compustat as those used in Bebchuk, Cohen, and Ferrell (2009), who in turn used the same controls of Gompers, Ishii and Metrick with a few additions. (Using only the controls employed by GIM, with no additions, yields similar results.) In particular, we use the following variables as controls in the Q regressions: log of the book value of assets in the current fiscal year; log of company age measured in years; inside ownership (the fraction of shares held by officers and directors), square of inside ownership, ROA (the ratio of net income to assets) in the current fiscal year, CAPEX/assets (the ratio of capital expenditures to assets) in the current fiscal year, leverage (the ratio of long-term debt plus debt due in one year to assets) in the current fiscal year, R&D per sales in the current fiscal year; and a dummy for incorporation in Delaware. We also include dummies for missing R&D expenditure data and missing inside ownership data.

Table VIII reports annual OLS regressions coefficients on the governance indices from 1992 to 2008, omitting coefficients on the controls and the constant term. (We begin with 1992 because data on insider ownership as control, which is obtained from ExecuComp, begins in 1992.) As expected, our results for earlier years replicate those in earlier studies. More importantly, we find that the negative correlation between Tobin's Q and governance indices continues to be statistically significant and economically meaningful until the end of our period.[11]

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[11] Our findings concerning the persistence of the relationship between the governance indices G and E and Tobin's Q are consistent with those of Cremers and Ferrell (2009), who extend the analysis back to 1978 and find a consistently negative association between industry adjusted Q and G-Index from 1978 to 2006, and of Giroud and Mueller (2008) who report such results for the years 1990-2006.

Table VIII also reports Fama-Macbeth coefficients for the 1992-2008 period as well as for the 1992-2001 and 2002-2008 periods. For the G-Index, the Fama-Macbeth coefficient is -0.074 (with significance at the 95% confidence level) for the period 1992-2001 and -0.0107 (with significance at the 99% confidence level) for the period 2002-2008. For the E-Index, the Fama-Macbeth coefficient is -0.0229 (with significance at the 95% confidence level) for the period 1992-2001 and -0.0277 (with significance at the 99% confidence level) for the period 2002-2008. The somewhat higher Fama-MacBeth coefficients in the second period are consistent with the fact that, during the first period, good-governance firms earned abnormal returns relative to poor-governance firms, which operated to widen market capitalization differences between good-governance and poor-governance firms. Thus, if anything, the association between governance indices and industry-adjusted Tobin's Q gained strengthened significance after 2001.

We can thus conclude that, while the association between the governance indices and abnormal returns did not exist after the period for which it was identified, the relationship between governance indices and Tobin's Q found by prior work persisted throughout our sample period. Thus, while the governance indices may no longer provide a tool for generating abnormal returns, they remain a useful tool for investors, researchers, and policymakers interested in governance.

4. Conclusion

This paper has sought to help resolve the questions arising from GIM's well-known and intriguing finding of an association between governance and abnormal returns during the 1990s. We have shown that the association ceased to the exist during the 2000s and we have provided evidence that can help explain both the existence of the association during the 1990s and its subsequent disappearance. Our findings are consistent with the learning hypothesis under which (i) markets in 1990 did not fully appreciate the difference between good-governance and poor-governance firms, and (ii) markets learned during the 1990s to appreciate these differences and gradually factored them into market prices. While simple strategies based on the governance indices can no longer be used to generate abnormal trading profits, the G-Index and E-Index continue to be negatively correlated with firm value and should remain a valuable tool for researchers, investors, and policymakers.

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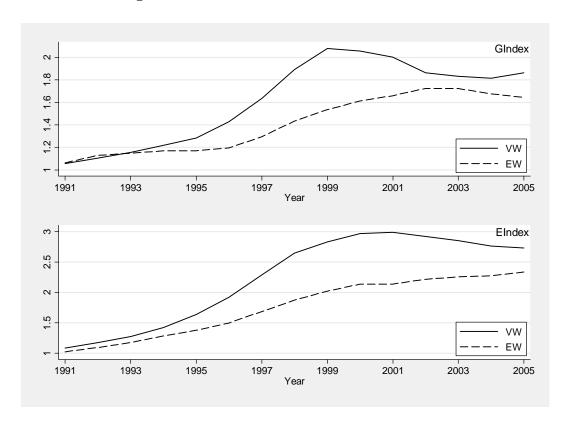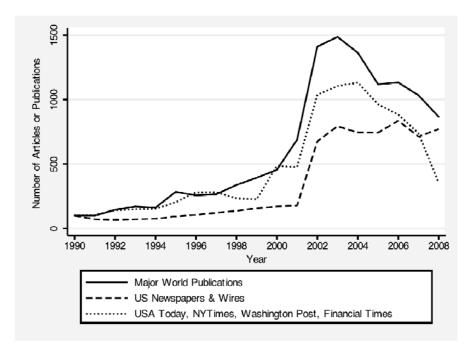**Figure I: Cumulative Excess Returns 1990-2008**

Figure II: Attention to Governance from the Media and Institutional Investors

Figure II(A) plots by year the number of unique newspaper articles, news wires, publications, and articles in four major newspapers (*USA Today*, *New York Times*, *Washington Post*, and *Financial Times*) that reference the word "Corporate Governance", normalized by 1990 base period counts. The data is obtained from Lexis-Nexis Academic. Figure II(B) reports the number of shareholder proposals submitted by institutional investors in each year.

(A): Media References to Corporate Governance

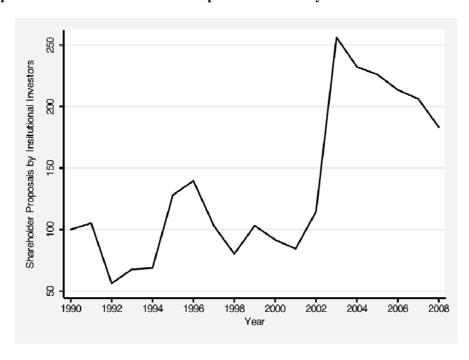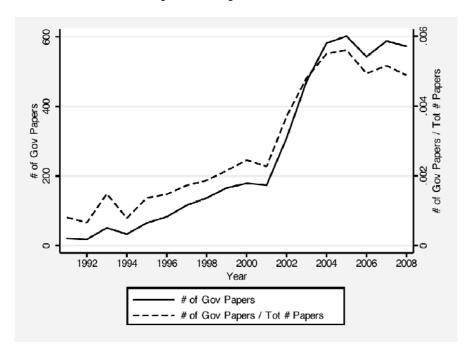**(B): Corporate Governance Shareholder Proposals Submitted by Institutional Investors**

Figure III: Attention to Governance from Researchers

Figure III(A) plots the number of published papers in academic journals covered by various social science databases that are in Business Resource Complete; these are papers which reference the term "corporate governance" either in their abstract or in author-supplied keywords. Figure III(B) plots the number of new governance-related working papers that are posted on the NBER working paper database.

(A): Published Academic Journal Papers on Corporate Governance

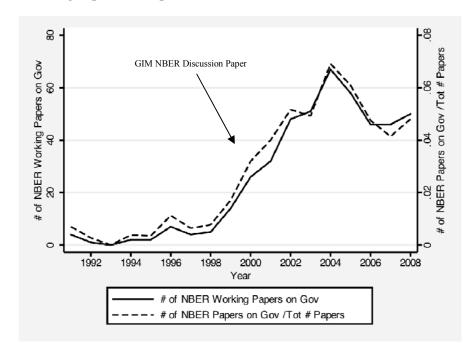**(B): NBER Working Papers on Corporate Governance**

Table I: Governance and Returns –Summary Statistics

Table I reports summary statistics of the data used in the empirical analyses of this paper. Panel A reports summary statistics on governance indices, as measured by the G-Index (Gompers, Ishii, and Metrick 2003) and the E-Index (Bebchuk, Cohen, and Ferrell 2009), for each of the 8 years in which IRRC volumes were published. Democracy (G) refers to firms with G-Index values less than or equal to 5, while Democracy (E) refers to firms with E-Index values of 0; Dictatorship (G) refers to firms with G-Index values greater than or equal to 14, while Dictatorship (E) refers to firms with E-index values greater than or equal to 5. Panel B reports the average monthly returns of value-weighted and equal-weighted governance portfolios, which are long Democracy portfolios and short Dictatorship portfolios, for G and E respectively, in the period between publication of IRRC volumes.

Panel A: Governance Indices

	1990	1993	1995	1998	2000	2002	2004	2006
G-Index	9.1209	9.3833	9.4316	8.9248	9.1672	9.2269	9.2640	9.1936
	(2.850)	(2.831)	(2.789)	(2.842)	(2.706)	(2.607)	(2.554)	(2.527)
E-Index	2.2807	2.3487	2.3203	2.2717	2.4187	2.4897	2.5425	2.4957
	(1.386)	(1.352)	(1.343)	(1.344)	(1.331)	(1.300)	(1.260)	(1.244)
Democracy (G)	10.19%	9.89%	8.84%	12.47%	9.20%	7.17%	7.12%	6.45%
Dictatorship (G)	6.09%	6.72%	6.27%	5.01%	5.44%	5.57%	4.99%	4.54%
Democracy (E)	12.29%	10.57%	10.84%	11.04%	8.59%	7.50%	6.18%	5.27%
Dictatorship (E)	4.40%	4.51%	3.71%	3.66%	4.37%	4.84%	4.56%	3.88%
Observations	1,001	1,041	1,052	1,476	1,304	1,507	1,602	1,519

Panel B: Governance Indices Portfolios and Average Raw Returns

	1990	1993	1995	1998	2000	2002	2004	2006
	9/90~6/93	*7/93~6/95*	*7/95~1/98*	*2/98~1/00*	*2/00~1/02*	*2/02~12/03*	*2/04~12/05*	*1/06~12/08*
VW: Democracy (G) - Dictatorship (G)	-0.19%	0.55%	0.11%	3.04%	-0.86%	-0.95%	-0.79%	0.20%
EW: Democracy (G) - Dictatorship (G)	0.58%	0.25%	-0.69%	1.63%	-0.05%	0.12%	0.13%	-0.17%
VW: Democracy (E) - Dictatorship (E)	0.17%	0.49%	0.73%	2.79%	-1.61%	-1.24%	-0.68%	0.27%
EW: Democracy (E) - Dictatorship (E)	0.03%	0.49%	-0.12%	2.04%	-0.50%	-0.31%	-0.06%	0.54%

Table II: Governance Portfolios and Abnormal Stock Returns

Table II reports a sub-period breakdown of governance portfolio monthly alphas, estimated using Fama-French (1993) three-factor model and includes the Carhart (1997) momentum factor, for two sets of governance portfolios. The first portfolio is long stocks in the Democracy (G) portfolio (G ≤ 5) and short stocks in the Dictatorship (G) portfolio (G ≥ 14); the second portfolio is long stocks in the Democracy (E) portfolio (E = 0) and short stocks in the Dictatorship (E) portfolio (E ≥ 5). We consider portfolios both value- and equal- weighted by firms' common stock market capitalization. Firms' entrenchment scores were adjusted when updated information on firms' corporate governance provisions became available: July 1993; July 1995; February 1998; February 2000; February 2002; January 2004; and January 2006. For each year, average monthly alpha is estimated using 12 months of data corresponding to the calendar year. All standard errors are White (1980) robust and reported in parentheses. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Panel A: Alphas during and after GIM Sample Period

Periods	Democracy (G) - Dictatorship (G)		Democracy (E) - Dictatorship	
	VW	EW	VW	EW
1991~1999	0.00722 ***	0.00487 **	0.0116 ***	0.00615 ***
	(0.002)	(0.002)	(0.003)	(0.002)
2000~2008	-0.00197	0.00357 *	0.00135	0.00575 **
	(0.003)	(0.002)	(0.002)	(0.003)

Panel B: Alphas by 4-Year Sub-Periods

Sub-Periuods	Democracy (G) - Dictatorship (G)		Democracy (E) - Dictatorship	
	VW	EW	VW	EW
1991~1994	0.0046 *	0.0052 *	0.0070 **	0.0019
1992~1995	0.0040	0.0052 *	0.0069 **	0.0057 **
1993~1996	0.0038	0.0014	0.0072 **	0.0061 **
1994~1997	0.0044 *	0.0015	0.0093 ***	0.0077 ***
1995~1998	0.0046	0.0001	0.0130 ***	0.0061 **
1996~1999	0.0094 **	0.0018	0.0144 ***	0.0072 **
1997~2000	0.0121 **	0.0068 **	0.0159 ***	0.0106 ***
1998~2001	0.0130 ***	0.0090 ***	0.0130 ***	0.0093 ***
1999~2002	0.0083	0.0059	0.0058	0.0066
2000~2003	-0.0010	0.0042	0.0041	0.0047
2001~2004	-0.0021	0.0024	0.0006	0.0000
2002~2005	-0.0058	0.0032	-0.0019	0.0030
2003~2006	-0.0014	-0.0001	-0.0020	0.0015
2004~2007	-0.0008	-0.0022	-0.0026	0.0006
2005~2008	0.0022	-0.0016	-0.0009	0.0023
Mean	0.0037	0.0029	0.0060	0.0049
Std Dev	0.0054	0.0032	0.0063	0.0032
Min	-0.0058	-0.0022	-0.0026	0.0000
Max	0.0130	0.0090	0.0159	0.0106

Panel C: Alphas During the Whole Sample Period

Periods	Democracy (G) - Dictatorship (G)		Democracy (E) - Dictatorship	
1991~2008	0.00291	0.00382 ***	0.00602 ***	0.00529 ***
	(0.002)	(0.001)	(0.002)	(0.002)

Table III: Post-2001 Changes in the Association between Governance and Returns

Table III reports the difference in governance hedge portfolio monthly alphas before (and including) 2001 and post 2001 for four governance portfolios, using governance portfolio returns from September of 1990 to December of 2009. Governance portfolios are defined as described in Table II. Monthly alphas are estimated using Fama-French (1992) three-factor model and include the Carhart (1997) momentum factor. We include a post-2001 dummy (POST) to test for changes in governance portfolios' average monthly alphas. All standard errors are White (1980) robust and errors appear immediately below the coefficient estimate in parentheses. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Variable	Democracy (G) - Dictatorship (G)		Democracy (E) - Dictatorship (E)	
	(1)	(2)	(3)	(4)
	VW	EW	VW	EW
Alpha	0.00607**	0.00480**	0.00990***	0.00591***
	(0.002)	(0.002)	(0.002)	(0.002)
POST	-0.00812**	-0.00251	-0.00999***	-0.0016
	(0.004)	(0.003)	(0.004)	(0.003)
MktRf	0.0175	0.0713*	-0.128**	0.00584
	(0.062)	(0.039)	(0.059)	(0.047)
SMB	-0.0176	0.251***	-0.242***	0.0284
	(0.075)	(0.047)	(0.066)	(0.050)
HML	-0.500***	-0.328***	-0.811***	-0.480***
	(0.081)	(0.060)	(0.086)	(0.067)
Carhart	0.021	-0.184***	-0.0553	-0.120**
	(0.038)	(0.034)	(0.037)	(0.049)
Observations	220	220	220	220
Adj. Rsq	0.254	0.514	0.417	0.391
F Stat	0.397	0.981	0.001	2.452
P-Val	0.529	0.323	0.975	0.119

Table IV: Earnings Announcement Returns and Governance Indices

Table IV reports the relationship between earnings announcement returns and corporate governance indices in the period before and after the end of 2001, where the announcement return windows range from 1, 3, 5, 10, and 20 trading days prior to the earnings announcement date until 1 trading day after the announcement. We define a post (and not including) 2001 dummy to indicate the earnings announcement occurred in calendar year 2002 or later. Panel A reports coefficients from an OLS regression of the announcement returns in a particular window on the G-index, the POST dummy, and an interaction of the two terms; Panel B is identical to Panel A but uses the E-index instead. Each panel is divided into two parts; the left hand side panel uses raw stock returns around the announcement window as the dependent variable, whereas the right hand side panel's specifications use returns in excess of the Fama-French (1992) three factors over the relevant time window, using betas estimated from 20 to 210 trading days prior to the earnings announcement. All standard errors are heteroskedasticity and autocorrelation robust, using Newey-West (1987) estimator with four lags, and appear immediately below the coefficient estimate in parentheses. F statistics and p-value testing the null hypothesis of no relation between earnings announcement returns and governance in the post-2001 period are reported in the last two rows of each panel. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Panel A: G-Index

	Raw Returns					Excess Returns				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)
G-Index	-0.0004**	-0.0006***	-0.0009***	-0.0012***	-0.0016***	-0.0003*	-0.0005***	-0.0007***	-0.0011***	-0.0013***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
POST	-0.0083***	-0.0133***	-0.0179***	-0.0247***	-0.0372***	-0.0057**	-0.0073***	-0.0096***	-0.0113***	-0.0171***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)
G-Index x POST	0.0006**	0.0009***	0.0011***	0.0013***	0.0017***	0.0004*	0.0005*	0.0008***	0.0010***	0.0015***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	57,640	57,639	57,639	57,638	57,366	57,597	57,596	57,596	57,595	57,590
Adj. Rsq	0.0004	0.0008	0.0016	0.0033	0.0059	0.0002	0.0004	0.0005	0.0005	0.0005
F Stat	1.1958	1.7929	1.3703	0.0982	0.2846	0.4574	0.0625	0.1372	0.1042	0.6641
P-Val	0.2742	0.1806	0.2418	0.754	0.5937	0.4989	0.8026	0.7110	0.7468	0.4151

Panel B: E-Index

	Raw Returns					Excess Returns				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)
E-Index	-0.0006*	-0.0011***	-0.0017***	-0.0021***	-0.0023***	-0.0004	-0.0008**	-0.0013***	-0.0020***	-0.0024***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
POST	-0.0063***	-0.0090***	-0.0131***	-0.0185***	-0.0287***	-0.0046***	-0.0049***	-0.0065***	-0.0069***	-0.0105***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
E-Index x POST	0.0014***	0.0017***	0.0025***	0.0025***	0.0032***	0.0010**	0.0010*	0.0017***	0.0021***	0.0032***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	57,640	57,639	57,639	57,638	57,633	57,597	57,596	57,596	57,595	57,590
Adj. Rsq	0.0004	0.0008	0.0016	0.0032	0.0057	0.0002	0.0004	0.0005	0.0005	0.0005
F Stat	4.2889	2.2633	3.368	0.5823	1.6810	2.8565	0.3786	0.7651	0.1353	1.8856
P-Val	0.0384	0.1325	0.0665	0.4454	0.1948	0.091	0.5383	0.3818	0.713	0.1697

Table V: Earnings Announcement Returns: Democracy vs. Dictatorship Firms

Table V reports the relationship between earnings announcement returns and democracy/dictatorship firms in the period before and after the end of 2001, where the announcement return windows range from 1, 3, 5, 10, and 20 trading days prior to the earnings announcement date until 1 trading day after the announcement. We define a post (and not including) 2001 dummy to indicate the earnings announcement occurred in calendar year 2002 or later. Panel A reports coefficients from an OLS regression of the announcement returns in a particular window on a democracy portfolio dummy (where DEMOCRACY (G) = 1 if G ≤ 5 and DEMOCRACY (G) = 0 if G ≥ 14), a post 2001 period dummy, and an interaction of the two terms; Panel B is identical to Panel A but uses the E-index to define the democracy portfolio dummy (where DEMOCRACY (E) = 1 if E = 0 and DEMOCRACY (E) = 9 if E ≥ 5). Each panel is divided into two parts; the left hand side panel uses raw stock returns around the announcement window as the dependent variable, whereas the right hand side panel's specifications use returns in excess of the Fama-French (1992) three factors over the relevant time window, using betas estimated from 20 to 210 trading days prior to the earnings announcement. All standard errors are heteroskedasticity and autocorrelation robust, using Newey-West (1987) estimator with four lags, and appear immediately below the coefficient estimate in parentheses. F statistics and p-value testing the null hypothesis of no relation between earnings announcement returns and governance in the post-2001 period are reported in the last two rows of each panel. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Panel A: G-Index

| | Raw Returns | | | | | Excess Returns | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)
DEMOCRACY (G)	0.0041*	0.0068***	0.0091***	0.0125***	0.0151***	0.0031	0.0052**	0.0068***	0.0112***	0.0134***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
POST	-0.0009	-0.0008	-0.0012	-0.0045	-0.0138***	-0.0012	-0.0004	0.0008	0.0042	0.0036
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
DEMOCRACY (G) x POST	-0.0083**	-0.0118***	-0.0142***	-0.0169***	-0.0215***	-0.0058*	-0.0078**	-0.0097**	-0.0130***	-0.0184***
	(0.003)	(0.004)	(0.004)	(0.005)	(0.006)	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)
Observations	7,744	7,744	7,744	7,744	7,744	7,731	7,731	7,731	7,731	7,731
Adj. Rsq	0.0018	0.0021	0.0031	0.0038	0.0078	0.0011	0.0008	0.0011	0.0002	0.0003
F Stat	2.3749	2.6189	2.7055	1.6931	2.0342	1.0273	0.7788	0.9964	0.3325	1.5684
P-Val	0.1233	0.1056	0.1000	0.1932	0.1538	0.3108	0.3775	0.3182	0.5642	0.2105

Panel B: E-Index

| | Raw Returns | | | | | Excess Returns | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)	(T-1,T+1)	(T-3,T+1)	(T-5,T+1)	(T-10,T+1)	(T-20,T+1)
	0.0040*	0.0057**	0.0095***	0.0095***	0.0090**	0.0026	0.0041*	0.0079***	0.0090***	0.0104***
DEMOCRACY (E)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
	-0.0021	-0.0029	-0.0011	-0.0075**	-0.0155***	-0.0024	-0.0027	0.0012	0.002	0.0026
POST	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)
	-0.0084**	-0.0092**	-0.0139***	-0.0118**	-0.0164***	-0.0064*	-0.0048	-0.0094**	-0.0102**	-0.0167***
DEMOCRACY (E) x POST	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.003)	(0.004)	(0.004)	(0.005)	(0.005)
Observations	7,392	7,392	7,392	7,392	7,392	7,392	7,392	7,392	7,392	7,392
Adj. Rsq	0.0018	0.0021	0.0031	0.0038	0.0078	0.0011	0.0008	0.0011	0.0002	0.0003
F Stat	2.5059	1.3598	1.9430	0.3686	2.3446	1.9998	0.0680	0.2769	0.1219	2.369
P-Val	0.1135	0.2436	0.1634	0.5438	0.1258	0.1574	0.7943	0.5987	0.7269	0.1238

Table VI: Analyst Surprises and Governance Indices

Table VI reports coefficients from an ordered probit of analyst surprise on corporate governance measures in the period before, and after the end of 2001. We define a post (and not including) 2001 dummy to indicate the earnings announcement occurred in calendar year 2002 or later. We code two news variables to capture the information in analyst surprise, defined as actual earnings minus forecasted earnings divided by the stock price 5 days prior to the announcement date. News1 takes on 3 values representing good/no/bad news: news1 equals 1 if analyst surprise is greater than 5%, 0 if analyst surprise is between -5% to 5%, and -1 if analyst surprise is less than -5%. News2 also takes on 3 values representing good/no/bad news; news2 equals 1 if analyst surprise is greater than 10%, 0 if analyst surprise is between -10% to 10%, and -1 if analyst surprise is less than -10%. Four governance measures are considered: G-Index, E-Index, an indicator for democracy/dictatorship using the G-Index (where DEMOCRACY (G) = 1 if $G \leq 5$ and DEMOCRACY (G) = 0 if $G \geq 14$), and an indicator for democracy/dictatorship using the E-Index (where DEMOCRACY (E) = 1 if E = 0 and DEMOCRACY (E) = 1 if $E \geq 5$). We control for the log of market capitalization and the log of the book to market ratio, but have suppressed the coefficients in the table. White (1980) robust and errors appear immediately below the coefficient estimate in parentheses. F statistics and p-value testing the null hypothesis of no relation between analyst surprise and governance in the post-2001 period are reported in the last two rows of each panel. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Dependent Variable:	NEWS 1 (1)	NEWS 2 (2)	NEWS 1 (3)	NEWS 2 (4)	NEWS 1 (5)	NEWS 2 (6)	NEWS 1 (7)	NEWS 2 (8)
	Governance Variable: G-Index		Governance Variable: E-Index		Governance Variable: Democracy (G)		Governance Variable: Democracy (E)	
Governance Variable	-0.0047	-0.0087***	-0.0073	-0.0204***	0.1264**	0.1227***	0.0833	0.1164**
	(0.004)	(0.003)	(0.007)	(0.006)	(0.057)	(0.045)	(0.063)	(0.050)
POST	-0.1186**	-0.0840**	-0.0837***	-0.0659***	0.0084	-0.008	0.0284	-0.0225
	(0.052)	(0.040)	(0.030)	(0.023)	(0.062)	(0.050)	(0.074)	(0.058)
Governance Variable x POST	0.0103**	0.0085**	0.0249**	0.0262***	-0.1156	-0.0703	-0.2082**	-0.1466**
	(0.005)	(0.004)	(0.011)	(0.008)	(0.081)	(0.064)	(0.091)	(0.071)
Observations	57,248	57,237	57,248	57,237	7,672	7,673	7,346	7,348
F Stat	2.0030	0.0037	4.6643	0.8435	0.0326	1.2190	2.9067	0.2958
P-Val	0.1570	0.9513	0.0308	0.3584	0.8568	0.2696	0.0882	0.5865

Table VII: Robustness Checks

Table VII reports robustness checks for Tables IV (Panel A), V (Panel B), and VI (Panel C). In each Panel, we replicate the estimation in the respective tables but in subsample, in particular, we 1) exclude "New Economy" firms as classified by Murphy (2003), 2) exclude the 1/3 most competitive firms (i.e. firms that lie in the lowest tercile of HHI) in the Democracy portfolio as well as the 1/3 most competitive firms in the Dictatorship portfolio, and 3) exclude the 2/3 most competitive firms (i.e. firms that lie in the lowest two terciles of HHI) in the Democracy portfolio as well as 2/3 most competitive firms in the Dictatorship portfolio. In each robustness test, we report the key coefficients and report standard errors in parentheses below the coefficients. In each specification, we report F-statistics that tests the null hypothesis that the post period effect of governance on abnormal returns (Panel A), earnings announcement period returns (Panel B), and analyst surprises around earnings announcements (Panel C) is zero; p-values for the F-tests are reported in italics below the F-statistics. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Panel A: Robustness Checks for Table IV

| | Democracy (G) - Dictatorship (G) | | | | | | Democracy (E) - Dictatorship (E) | | | | | |
| | VW | | | EW | | | VW | | | EW | | |
	Cons	Post	P_val of F-Stat	Cons	Post	P_val of F-Stat	Cons	Post	P_val of F-Stat	Cons	Post	P_val of F-Stat
1) Excluding New Economy Firms	0.0058***	-0.0089**	0.37	0.0045**	-0.0028	0.46	0.0094***	-0.0100***	0.84	0.0051**	-0.0018	0.19
	(0.002)	(0.004)		(0.002)	(0.003)		(0.002)	(0.004)		(0.002)	(0.003)	
2) Excluding Firms from Top 1/3 of Most Competitive Industries	0.0039	-0.0048	0.80	0.0068**	-0.0022	0.14	0.0147***	-0.0159***	0.76	0.0065**	-0.0013	0.11
	(0.003)	(0.005)		(0.003)	(0.004)		(0.004)	(0.006)		(0.003)	(0.004)	
3) Excluding Firms from Top 2/3 of Most Competitive Industries	0.0074**	-0.0080*	0.85	0.0063***	-0.0031	0.26	0.0132***	-0.0135***	0.92	0.0082***	-0.0042	0.24
	(0.003)	(0.004)		(0.002)	(0.003)		(0.003)	(0.005)		(0.003)	(0.004)	

Panel B: Robustness Checks for Table V

| | Democracy (G) vs. Dicttatorship (G) | | | | | | Democracy (E) vs. Dicttatorship (E) | | | | | |
| | Raw Returns (T-5,T+1) | | | Excess Returns (T-5,T+1) | | | Raw Returns (T-5,T+1) | | | Excess Returns (T-5,T+1) | | |
	Demo	DemoXPost	P_val of F-Stat	Demo	DemoXPost	P_val of F-Stat	Demo	DemoXPost	P_val of F-Stat	Demo	DemoXPost	P_val of F-Stat
1) Excluding New Economy Firms	0.0075***	-0.0128***	0.10	0.0058**	-0.0090**	0.29	0.0077***	-0.0117***	0.22	0.0068***	-0.0083**	0.60
	(0.003)	(0.004)		(0.003)	(0.004)		(0.003)	(0.004)		(0.003)	(0.004)	
2) Excluding Firms from Top 1/3 of Most Competitive Industries	0.0130***	-0.0214***	0.12	0.0119***	-0.0201***	0.11	0.0153***	-0.0212***	0.34	0.0132***	-0.0190**	0.31
	(0.004)	(0.007)		(0.004)	(0.006)		(0.005)	(0.008)		(0.005)	(0.007)	
3) Excluding Firms from Top 2/3 of Most Competitive Industries	0.0121***	-0.0168***	0.23	0.0088***	-0.0132***	0.24	0.0128***	-0.0179***	0.20	0.0106***	-0.0151***	0.23
	(0.003)	(0.005)		(0.003)	(0.005)		(0.003)	(0.005)		(0.003)	(0.005)	

Panel C: Robustness Checks for Table VI

| | Democracy (G) vs. Dicttatorship (G) | | | | | | Democracy (E) vs. Dicttatorship (E) | | | | | |
| | News1 | | | News2 | | | News1 | | | News2 | | |
	Demo	DemoXPost	P_val of F-Stat	Demo	DemoXPost	P_val of F-Stat	Demo	DemoXPost	P_val of F-Stat	Demo	DemoXPost	P_val of F-Stat
1) Excluding New Economy Firms	0.1394**	-0.1313	0.89	0.1219***	-0.0865	0.47	0.1558***	-0.2039**	0.49	0.1456***	-0.1300*	0.77
	(0.058)	(0.084)		(0.046)	(0.066)		(0.060)	(0.093)		(0.049)	(0.073)	
2) Excluding Firms from Top 1/3 of Most Competitive Industries	0.0248	0.1319	0.14	0.0534	0.2121*	0.00	0.109	-0.0881	0.85	0.2788***	-0.1184	0.09
	(0.093)	(0.132)		(0.076)	(0.109)		(0.113)	(0.149)		(0.093)	(0.125)	
3) Excluding Firms from Top 2/3 of Most Competitive Industries	0.109	-0.034	0.33	0.1130**	-0.0082	0.08	0.1002	-0.0991	0.99	0.1473**	-0.0456	0.13
	(0.069)	(0.100)		(0.055)	(0.079)		(0.079)	(0.111)		(0.062)	(0.088)	

Table VIII: Governance Indices and Tobin's Q

Table VII reports mean annual OLS regressions of log of industry-adjusted Q on two proxies of corporate governance, as measures by the G-Index (Gompers, Ishii, and Metrick 2003) and the E-Index (Bebchuk, Cohen, and Ferrell 2009), and various controls. Tobin's Q is the ratio of the market value of assets to the book value of assets, where the market value of assets is computed as book value of assets plus the market value of common stock less the sum of book value of common stock and balance sheet deferred taxes. Industry-adjusted Tobin's Q is equal to Tobin's Q minus the median Tobin's Q in the industry, where industry is defined by two-digit SIC Code. The independent variables are log of the book value of assets in the current fiscal year, log of company age measured in months as of December of each year, a dummy for incorporation in Delaware, insider ownership, square of inside ownership, ROA in the current fiscal year, CAPEX/assets in the current fiscal year, leverage in the current fiscal year, and R&D per sales in the current fiscal year. Insider Ownership is equal to the fraction of shares held by officers and directors. ROA is the ratio of net income to assets. CAPEX/assets is the ratio of capital expenditures to assets. R&D per Sales is the ratio of research and development expenditures to total sales. Leverage is the ratio of long-term debt plus debt due in one year to assets. We also include dummies for missing R&D expenditure data and missing inside ownership data. The table reports only the annual coefficients of the G-Index and the E-index and suppresses other regressors. Fama-MacBeth coefficients are calculated and reported for the entire sample period (1992~2008) as well as the pre- and post-2001 sub-periods (1992~2001 and 2001~2008) in the last three rows. Standard errors appear immediately below the coefficient estimate in parentheses. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Year	G-Index		E-Index		
	Coeff	Adj Rsq	Coeff	Adj Rsq	Obs
1992	-0.0060	0.34	-0.0103	0.34	977
	(0.004)		(0.008)		
1993	-0.0043	0.39	-0.0163*	0.40	1,036
	(0.004)		(0.007)		
1994	-0.0035	0.35	-0.0168*	0.35	1,041
	(0.004)		(0.007)		
1995	-0.0011	0.26	-0.0115	0.26	1,094
	(0.004)		(0.008)		
1996	-0.0036	0.33	-0.0171*	0.33	1,054
	(0.004)		(0.008)		
1997	0.0024	0.39	-0.00348	0.39	1,006
	(0.004)		(0.008)		
1998	-0.0144**	0.27	-0.0441***	0.27	1,279
	(0.005)		(0.009)		
1999	-0.0227***	0.18	-0.0614***	0.19	1,149
	(0.006)		(0.012)		
2000	-0.0179**	0.23	-0.0447***	0.24	1,133
	(0.006)		(0.012)		
2001	-0.0156**	0.22	-0.0424***	0.22	1,083
	(0.005)		(0.010)		
2002	-0.0122**	0.24	-0.0366***	0.25	1,362
	(0.004)		(0.009)		
2003	-0.0164***	0.15	-0.0391***	0.16	1,319
	(0.005)		(0.008)		
2004	-0.0099*	0.23	-0.0229**	0.23	1,393
	(0.004)		(0.008)		
2005	-0.0124**	0.21	-0.0271***	0.21	1,318
	(0.004)		(0.008)		
2006	-0.0085*	0.21	-0.0243**	0.21	1,283
	(0.004)		(0.008)		
2007	-0.0043	0.24	-0.0144	0.25	1,174
	(0.004)		(0.010)		
2008	-0.0110**	0.24	-0.0296***	0.25	1,111
	(0.004)		(0.009)		
Fama MacBeth Coefficients					
1992~2001	-0.0074**	0.08	-0.0229**	0.08	12,760
	(0.002)		(0.006)		
2002~2008	-0.0107***	0.18	-0.0277***	0.18	8,960
	(0.001)		(0.003)		
1992~2008	-0.0086***	0.06	-0.0247***	0.06	21,720
	(0.002)		(0.004)		