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Which Aspects of Corporate Governance Do and Do Not Matter in Emerging Markets

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November 2019

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Abstract

Well-constructed, country-specific “corporate governance indices” can predict higher firm values in emerging markets. However, there is little credible research on which aspects of governance drive that overall relationship. We study that question across four major emerging markets (Brazil, India, Korea, and Turkey). We build overall country-specific governance indices, comprised of indices for disclosure, board structure, ownership structure, shareholder rights, board procedure, and control of related party transactions. Disclosure (especially financial disclosure) predicts higher market value across all four countries. Board structure (principally board independence) has a positive coefficient in all countries and is significant in two countries. The other indices do not predict firm value. These results suggest that regulators and investors, in assessing governance, and firm managers, in responding to investor pressure for better governance, would do well to focus on disclosure and board structure.

Keywords: Brazil, Korea, India, Turkey, corporate governance, boards of directors, disclosure, shareholder rights

JEL Classifications: G18, G30, G34, G39, K22, K29

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1 – Introduction

A large body of research provides evidence that firm-level corporate governance (CG) is associated with firm value and aspects of firm performance. However, much of that research is purely cross-sectional and provides weak evidence on causation.[1] Moreover, which aspects of firm-level CG (for example, disclosure, board structure, or board procedures) affect firm value is much less studied and remains a largely open question. The question of what matters in corporate governance is especially important in emerging markets, because of the extra risks they pose for investors, regulators and firms (Claessens and Yurtoglu, 2013; Karolyi, 2015). For instance, suppose that a firm wants to adjust its CG. Given that CG mechanisms are costly, which aspects should it concentrate on (Leuz and Wysocki, 2016)? This article provides evidence on which aspects of CG appear to drive firm value in emerging markets and, perhaps of equal practical importance, which do not.

Very few prior studies use methods sufficient to provide credible evidence on potential causation. Occasional natural experiments aside, we believe that minimum credibility requirements should be (i) panel data with firm fixed effects (FE) or at least random effects (RE), plus standard errors clustered on firm. Very few studies satisfy these criteria.[2] A further challenge in assessing the impact of particular aspects of CG is the need to control for other aspects of CG. Otherwise, a correlation between disclosure and firm value (as we find here) could reflect omitted variable bias, due to failure to control for other aspects of CG, which correlate with the included aspects and predict firm value. We are not aware of another study that investigates the power of specific aspects of CG to predict firm value, with firm effects, controlling for other aspects of CG, in either developed or emerging markets.

We focus here on emerging markets, which can raise different governance concerns than developed markets (Bebchuk and Hamdani, 2009). We study six broad aspects of governance drawn from theory, In some cases empirical evidence suggests that these aspects can affect firm performance or value to minority investors. These six aspects are board structure,

[1] See Durnev and Kim (2005); Klapper and Love (2004); Doidge, Karolyi and Stulz (2007); Dahya, Dimitrov, and McConnell (2007); Bruno and Claessens (2010). The only exceptions we know of are Lang, Lins and Maffett (2012), who study transparency rather than governance as such, and Black et al. (2014), who study the overall governance indices, but not governance aspects such as disclosure or board structure.

[2] For multicountry studies, see prior footnote. Among single-country studies, only Cheung et al. (2011; Hong Kong), and Ararat, Black and Yurtoglu (2017, Turkey) satisfy these criteria.

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disclosure, ownership, shareholder rights, board procedures, and control of related party transactions (RPTs). We employ a strong empirical specification, using firm effects and extensive covariates. We use country-specific CG indices for four main emerging markets (Brazil, India, Korea, and Turkey). The overall indices are known from prior work to predict firm value in each country. We assess here which aspects of these overall indices drive that predictive value, and which do not.

Our panel data design – which relies on firm and year fixed effects (FE), plus extensive covariates to control for profitability, growth and other aspects of firm performance that can also affect Tobin's *q* -- is not a true causal design. However, it can be seen as the best research design that is realistically available for studying CG in a multi-country setting.[3] We also apply bounds analysis, to assess the sensitivity of our results to potential omitted variable bias (OVB). The bounds analysis provides evidence that OVB could be important in participar countries, especially India, but is unlikely to explain our full set of results. This analysis does not address the potential for reverse causation, in which firm performance predicts the firm's CG choices. However, as we discuss in section 2.3, our prior studies in the four countries we study of which factors predict CG practices (Black, Jang and Kim, 2006b, on Korea; Ararat, Black and Yurtoglu, 2017, on Turkey; Balasubramanian, Black and Khanna, 2010, on India) suggest that reverse causation is a limited concern in emerging markets.

We report three main results. The first involves investor reaction to the extent and quality of disclosure, as measured by our disclosure index. Additional firm-level disclosure, above each country's minimum legal requirements, predicts higher market value in each individual country and when we pool across all four countries (pooled sample). In the bounds analysis, the value of disclosure is robust to severe assumptions about the level of OVB for the pooled sample, and for Brazil and Turkey, and robust to less severe assumptions for Korea and India. Financial disclosure is a stronger predictor of firm value than non-financial disclosure. This effect is economically meaningful. For the pooled sample, a one-standard-deviation (SD) increase in disclosure predicts a 4.0% increase in Tobin's *q*.[4]

[3] In a single-country, researchers can sometimes exploit "natural experiments" – usually legal shocks to a particular country's CG rules. However, most shock-based studies rely on a single shock, in a single country, to a particular aspect of governance. It is unlikely that one would find exogenous shocks for several aspects of CG, or find similar shocks in a representative number of countries.

[4] Note that our results reflect responses to overall disclosure practices (e.g., do financial statements include a statement of cash flows; are they provided in English; do firms disclose related-party transactions). We do not

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Second, board structure predicts higher market value in Brazil, Korea, and the pooled sample, but not in India and Turkey). However, in the bounds analysis, this result is robust to reasonable levels of OVB only in Korea. The effect of board structure on firm value comes principally from board independence, rather than from the existence and structure of board committees (e.g., an audit committee). For the pooled sample, a one-SD increase in board structure index predicts a 2.0% increase in Tobin's *q*. A combined index of disclosure and board structure (Combined D-BS Index) is positive and statistically significant in all countries and the pooled sample. In our bounds analysis, the positive association between between the Combined D-BS Index and market value is robust except in India. For the pooled sample, a one-SD increase in the Combined D-BS Index predicts a 4.8% increase in Tobin's *q*.

Third, once one controls for disclosure and board structure, the remaining indices, despite their theoretical plausibility, do not predict Tobin's *q*, either individually or combined into a single index, in any of our four countries. To be sure, lack of predictive power could reflect either the unimportance of these CG aspects or lack of construct validity for our measures. It is also possible that investors undervalue these aspects of governance. But the consistent unimportance of these aspects in predicting market value, across all four countries, suggests that our results do not simply reflect weak measures or investor ignorance.

We also investigate two channels that could explain the predictive power of disclosure and board structure for Tobin's *q*: share liquidity and firm profitability. Greater disclosure should reduce information asymmetry, which can enhance liquidity, increase share prices, and thus reduce cost of capital (Amihud and Mendelson, 1988; Diamond and Verrecchia, 1991; and Leuz and Wysocki, 2016). Improved board structure could do the same by giving investors more confidence in the integrity of reported results. Second, improved disclosure and board structure may increase firm market value (in these markets, this will be the value of noncontrolling shares) by increasing expected cash flows to minority shareholders. A combination of a well-functioning board and good disclosure reduces agency conflicts between minority shareholders and insiders, and can improve firm decision-making (Adams, Hermalin and Weisbach, 2010). We find some (not entirely compelling) evidence for a channel running from board structure to liquidity, but no evidence for a profitability channel, nor for a channel

study investor reactions to the content of specific disclosures. In results tables, we generally report both RE and FE specifications. In the text, we discuss FE results unless otherwise specified.

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running from disclosure to liquidity. However, our measure of liquidity is crude (the fraction of zero-return trading days). Unfortunately, better measures are not readily available across ouir four countries.

We also assess whether results are driven principally by particular subsamples. We compared manufacturing to non-manufacturing firms; large to small firms; high- to low-growth; high to low-profitability firms; business group member firms to non-business-group firms; firms cross-listed in the U.S. to non-Us cross-listed firms; and old to young firms. We found evidence that high-growth firms benefit more than low-growth firms from improved disclosure, milder evidence that high-profitability firms benefit more from improved board structure, and hints that cross-listing in the U.S. may be a substitute for disclosure and board structure reform**.**

We assess whether the power of the Disclosure and Board Structure indices to predict firm market value comes from specific governance elements, or instead from the overall influence of a number of elements. For Disclosure Index, we find in all four countries that it is the overall effect of a number of elements that matters, rather than specific, discrete elements. For Board Structure Index, we find evidence in Korea that having 50% or more independent directors has separate predictive power, but no similar evidence supporting the power of indnvidual elements in other countries.

Our results have important policy implications. They suggest that both firms, in responding to investor demands for good governance; and investors, in assessing CG quality; can do reasonably well by focusing on disclosure and board structure. Given that the cost of CG regulations can potentially outweigh their benefits (Bruno and Claessens, 2010; Litvak, 2007), regulators, in seeking to strengthen their capital markets, might also want to focus on these CG aspects.

Some limitations of our study: First, while we find evidence that investor react positively to enhanced disclosure, we make no claim that their reactions are correct, in an efficient capital markets sense. Second, our evidence on the association between disclosure and firm market value, while robust, would be more satisfying with supporting evidence on a channel for this effect.

With regard to the generalizability of our results, we study four large, middle-income markets, which have enough public firms to make country-specific analysis feasible. These countries differ in many ways, including legal traditions, language, culture, geographic location, and background legal rules. Thus, our results are likely to be representative of other major

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emerging markets, even if not every single market. We are also not aware of any reliable panel data on overall CG practices in a larger set of emerging markets. Unlike the country-specific indices we use here, the available multi-country indices covering emerging markets have no power to predict firm value, perhaps because of how they are constructed. These indices apply a US-centric view of what constitutes good CG; largely apply the same CG elements across many countries, rendering some elements irrelevant in some countries; and cover only the largest firms in each country.[5]

This paper proceeds as follows. Section 2 presents our methodology for measuring governance and our econometric methods. Section 3 describes our data. Section 4 presents our results on which aspects of governance predict firm value. Section 5 assesses the evidence on profitability and liquidity channels. Part 6 concludes. An appendix provides additional results, including results for subsamples and individual governance elements, and results using *ln*(market value) (the numerator of Tobin's q) and industry-adjusted Tobin's q as alternative measure of firm value.

2 – Methodology

2.1 – Corporate Governance Indices

We are interested in which aspects of CG drive the relation between an overall CG index and firm value. To measure CG, one can use either objective indices (composed of objectively measurable elements) or subjective indices (containing at least some elements that are not objectively measurable). There are obvious concerns with using subjective index elements. Indices can also be classified as common (using the same set of elements in all countries) or country-specific (using different elements in different countries). The main problem with common, objective indices is that only few elements are both measurable and meaningful in a cross-section of emerging markets (our focus here), even if one studies a limited number of countries. Local rules and institutions render some potential CG elements mandatory, while others are forbidden. Still others are either nearly universal or quite rare in particular countries, and thus are not useful measures of firm-level CG in those countries.

[5] Among the available multicountry indices, ISS covers only developed markets. ASSET4, Thomson-Reuters, and Bloomberg cover both developed and emerging markets, but only the largest firms in each country. Bloomberg also focuses on social and environmental issues.

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Black et al. (2014) show that common, objective indices have no power to predict firm value in our sample countries, and advocate use of country-specific indices.

Several commercial CG indices exist, some of which cover emerging market firms. However, all use subjective elements, and common indices. The elements of these indices reflect a US-centric approach, which may not fit well with the aspects of CG that matter in emerging markets. In Black et al. (2019), we study the two best commercial indices covering a substantial number of emerging markets, from ASSET4 and Thomson-Reuters, and find that neither these indices as a whole, nor their subindices, predict firm value in a panel data specification with firm RE or FE. This reinforces our view that, at least in emerging markets, CG indices must be country-specific indices, with elements are tailored to local rules and institutions.

In building country-specific indices for our four countries, we include an element if (i) there is theoretical or empirical reason to believe it corresponds to good governance; (ii) we have reasonably complete data across firms; (iii) there is sufficient variation across the firms in our sample; and (iv) the element is not too similar to another element.

As an example of how we build the country-specific indices, consider the board structure index, for which we first construct subindices for independence and board committees, and focus on the board independence subindex. In Brazil there are requirements for a minimum number of independent directors, and many firms have no independent directors at all. Even the Novo Mercado segment of the Bovespa stock exchange, which has higher minimum governance rules than a "regular" listing, requires only 20% independent directors. At the other extreme, only a few firms have a majority of independent directors. Given this pattern, we include five elements in the Brazil board independence subindex: (i) firm has at least one independent director; (ii) firm has at least 30% independent directors; (iii) firm has at least 50% independent directors; (iv) separation of roles between the CEO and the board chairman; and (v) the audit committee or fiscal board (a local substitute for an audit committee) includes a minority shareholder representative.

In India, in contrast, board independence rules are much stricter. These rules require firms to have either (i) one-third independent directors and a separation of the CEO and board chair roles; or (ii) at least 50% independent directors. Given these rules, the first two elements of the Brazil index would be meaningless in India. We include five elements in the India board independence subindex: (i) firm has at least 50% independent directors; (ii) firm has a strict

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majority of independent directors; (iii) firm has at least 50% independent directors *and* separaties the CEO and board chair roles; (iv) firm complies with the legal rule stated above;[6] and (v) audit committee has a majority of outside directors.

We could similarly discuss specific features of Korean and Turkish board independence rules, norms, and available data. These features lead to differences across the countries in how one can meaningfully measure board independence.

While we believe that building country-specific CG indices is the best path to follow in emerging markets – and perhaps the only feasible path, this approach also has important limitations. First, we cannot easily add additional countries. Each country requires both local knowledge and substantial work.[7] Second, due to the limited number of countries, and across-country differences in our indices, we cannot explore the relative importance of country versus firm characteristics in explaining corporate governance (cf. Doidge, Karolyi and Stulz, 2007).

Next we provide summary information on how we construct indices in each country, but refer readers to Black et al. (2014) for additional details. Table 1 lists the elements of the Board Structure and Disclosure indices; Appendix Table A1 lists all elements of all indices. For each element, Table 1 and the more complete Appendix table indicate in which countries the element is used (elements in boldface), which elements are available (or potentially available without great difficulty), but we did not use them in some countries, because they are either too similar to another element, or too rare or common for there to be meaningful differences across firms (not meaningful, NM). We also indicate whether an element is non-public but collected in our private surveys of Brazil, India, and Korea (NP), or non-public and not collected in our surveys (NA).

Brazil. We build indices for Board Structure (7 elements); Disclosure (11 elements); Board Procedure (6 elements); RPTs (4 elements); Shareholder Rights (6 elements) and Ownership Structure (5 elements); overall, 39 elements.

India. We build indices for Board Structure (6 elements); Disclosure (13 elements); Board Procedure (13 elements); RPTs (6 elements); and Shareholder Rights (4 elements);

[6] In our other three countries, there is no value in including legally required elements in our governance index. India is an exception; 9.6% of firm-year observations do not fully meet the board independence rules.

[7] For this project, each country-specific index draws on the local knowledge of laws and institutions, and local experience, of one of the coauthors. In prior work using overall CG indices (Black et al., 2014) were able to include Russia as a fifth country by relying on Russian indices built by others. In this present study, we cannot include Russia, because of the lack of subindices that have good overlap with the subindices in the other countries.

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overall, 42 elements. We cannot construct a meaningful ownership structure index because India has a one-share, one-vote rule, and few pyramids.[8] We use similar elements in Brazil and India to the extent feasible. Nonetheless, the Brazil and India indices have only 12 common elements.

Korea. We build indices for Board Structure (7 elements); Disclosure (3 elements); Board Procedure (12 elements); Ownership (1 element); and Shareholder Rights (4 elements); overall, 27 elements. We lack the data to construct an RPT index, but the Shareholder Rights Index contains one element related to RPTs. We again use similar elements to those used in other countries, where feasible. Nonetheless, the Brazil and Korea indices have only 6 common elements. This suggests the extent to which we find that overall CG indices must be country-specific, to be meaningful.

Turkey. Board Structure (6 elements); Disclosure (23 elements); Board Procedure (5 elements); Ownership (5 elements); and Shareholder Rights (8 elements); overall, 47 elements. We lack the data to construct an RPT index, but Shareholder Rights Index contains two elements related to RPTs. The Brazil and Turkey indices have only 10 common elements.

Most elements are dichotomous (coded as "1" if a firm has the attribute and "0" otherwise). We normalize continuous variables to run from 0~1. Within each index, we weight each element equally.[9] If an element value is missing, we compute the index using the average score for the non-missing values. We rescale each index to run from 0~100. For use in regressions, we normalize each index to mean = 0, standard deviation =1. We also define an overall country Corporate Governance Index (e.g., *Brazil CGI* or *BCGI*) as the equally-weighted average of the specific indices (renormalized when used in regressions).

2.2 – Econometric Methods

Our principal outcome variable is Tobin's *q*, which measures the value of minority shares, and does not capture the value of the control block. To reduce the influence of high-*q*

[8] Masulis, Pham and Zein (2011) report that 29% of the Indian firms in their sample belong to business groups. However, only a few groups use pyramidal ownership. Bertrand et al. (2002) examine tunneling within Indian business groups, but do not examine where tunneling of value out of the firms tends to occur within a pyramid, nor how ownership-control separation within a group affects firm performance. We control for the effect of business group membership on firm value by using a dummy variable for business group membership as a covariate.

[9] Brazil RPT index is an exception. See Appendix for details.

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outliers, we use the natural logarithm of *q* and also exclude outliers (year by year), for which a studentized residual from regressing *ln*(Tobin's *q*) on country *CGI* > |1.96|.

We run RE and FE regressions in each country using an unbalanced panel, with standard errors clustered on firm. Our model is:

$$ln(q_{i,t}) = \beta_0 + \beta_1 CGI_{i,t} + \beta_2 X_{i,t} + g_t + f_i + \varepsilon_{i,t} \quad (1)$$

Here $CGI_{i,t}$ is a vector of our governance indices (disclosure, board structure, etc.); $X_{i,t}$ is a vector of covariates, which we assume to be exogenous; g_t are year dummies; and f_i are firm effects (Wooldridge, 2010, § 10.2).[10]

We also pool observations across our four countries and construct pooled indices. This involves the strong assumption that the country-level indices capture the same underlying construct in each country. Pooling can be valuable in helping to make sense of results across a number of countries; we also need to pool our results to compare them to other multicounty studies. But the pooled results should be interpreted with caution.

For pooled regressions, we modify Model (1) as follows. We use only covariates available in all four countries (we lose foreign ownership, advertising/sales, R&D/sales, exports/sales, market share, and the MSCI dummy); convert country-specific industry dummies to 2-digit US-equivalent SIC codes; and interact the covariates, year dummies, and the constant term with country dummies. Doing so allows the impact of each of these variables vary across countries and provides, in effect, a country-specific "response surface." We view country-specific response surfaces as substantially more robust, with respect to potential OVB, than use of a single response surface across all countries, which is a common practice in multicountry CG studies. A concern for the pooled results is that the overall results could be driven by a particular country with a large number of firms in our sample. To address this possibility, we also run an FE specification weighting the sample so that each country receives equal weight, using 1/(number of firms) as country-specific weights. Weighting is not feasible for RE. Letting *c* index countries, d_c be country dummies, and suppressing the FE weights, the pooled FE specification is

[10] In robustness checks, we use *ln*(market value) (the numerator of Tobin's *q*) as an alternative outcome variable, with similar results. See Appendix.

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$$ln(q_{c,i,t}) = \beta_0 d_c + \beta_1 Pooled\ CGI_{c,i,t} + \beta_2 X_{c,i,t} \times d_c + f_i + (g_t \times d_c) + \varepsilon_{c,i,t} \qquad (2)$$

We also test for equivalence of FE and RE coefficients, using both the well-known Hausman test and the more flexible correlated random effects (CRE) model.[11]

2.3 – Potential for Reverse Causation

With limited exceptions, we do not have exogenous shocks to the elements of our governance indices (we have shocks to board structure in Korea in 2001 and in Turkey in 2012). Thus, reverse causation and omitted variable bias are potentially important concerns.[12] First consider reverse causation, with firm value predicting CG. In separate work for India, Korea, and Turkey (we have not studied Brazil),[13] we find that non-time varying firm characteristics (e.g., firm, industry, business group) strongly predict CG, but time-varying firm characteristics do so only weakly. The exception is firm size, measured by *ln*(assets), but all regressions include *ln*(assets) as a covariate. Therefore, an FE specification should greatly reduce reverse causation concerns. We discuss below other factors that also limit the potential for reverse causation by measuring CG in the first part of a year and Tobin's *q* at year-end.

To further assess whether our results for disclosure and board structure are likely to reflect reverse causation, we run regressions, similar to Model (1), except using our outcome variables (*ln*(*q*); ROA) as predictor variables, and either Disclosure Index or Combined D-BS Index as outcome variables, lagging the predictors by one or two years to allow time for them to affect CG. Tobin's *q* does not significantly predict either index except in Korea, where Tobin's *q* jumps in 1999, when Korean board structure reforms are adopted, in apparent anticipation of the effects of those reforms;. Black, Kim and Nasev (2019) report evidence that the board structure reforms then lead to improvement in the Korea Disclosure Index.

[11] See Wooldridge (2013), § 14.3. The CRE model adds time-demeaned variables $\bar{X}$ *and* $\overline{CGI}$ to the random effects model. We prefer the CRE test to the Hausman test because: (i) one can use clustered standard errors; (ii) one can test for different FE and RE coefficients for specific variables, not only for all coefficients together; and (iii) in practice, the Hausman test often fails to run (for us, it fails in India). Both tests assume exogenous *X*'s.

[12] In Korea, large firms (assets > 2 trillion won) face a legal shock to governance which comes into force in 2000-2001, during our study period; we study that shock elsewhere (Black, Jang and Kim, 2006a; Black and Kim, 2012). There is also a legal shock to board structure in Turkey in 2012 (see Ararat, Black, and Yurtoglu, 2017, for details). Some studies address endogeneity by instrumenting for CG, Tobin's *q*, or both. We find the instruments used for CG unconvincing, and do not pursue this approach here.

[13] See Black, Jang and Kim (2006b) (Korea); Balasubramanian, Black and Khanna (2010) (India); and Ararat, Black and Yurtoglu (2017) (Turkey).

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2.4. **Sensitivity Bounds for Omitted Variable Bias**

The more important endogeneity concern is likely to be omitted time-varying variables, which are associated with both CG and Tobin's q. FE with a broad CG index and extensive covariates can reduce, but not eliminate, the potential for OVB. We therefore assess how sensitive our results are likely to be to omitted variables, by adapting to panel data two approaches, one from statistics (Hosman, Hansen, and Holland, 2010; hereinafter HHH) and one from economics (Altonji, Elder, and Taber, 2005; Altonji et al., 2011; Oster, 2017; hereinafter , ACETO). Both use the influence of known covariates on the coefficient of interest to provide bounds on that coefficient, if there are similarly influential but omitted covariates. Both approaches are more credible if one begins with a rich set of included covariates, as we seek to do here.

We summarize these approaches here. Because we believe that lower bounds estimates can have broad application in panel data studies, but will be unfamiliar to many readers, we provide Stata code to implement them in the Appendix, focusing on FE estimates. Consider Model (1) and a single omitted covariate u, and let β_{long} (β_{short}) be the coefficient on a governance measure *CGI* from a "long" ("short") regression of an outcome, denoted as *q*, on *CGI* and covariates, which includes (excludes) variable u. A standard econometric result is

$$\left|\beta_{short} - \beta_{long}\right| = \left|\rho(q,u)_{X,CGI} \times \rho(CGI,u)_X\right| \tag{3}$$

Here $\rho(q,u)_b$ is the partial correlation between q and u, conditioned on a vector of covariates b.[14] We take absolute values for convenience, since the signs of the partial correlation coefficients are not known, and the principal concern is upward bias in β_{short}. HHH show that Equation (3) can be rewritten as:

$$\left|\beta_{short} - \beta_{long}\right| = \left|\rho(q,u)_{X,CGI} \times [s.e.(\beta_{short}) \times t_u]\right| \tag{4}$$

Here, $s.e.(x)$ is the standard error of x and t_u is the *t*-statistic on u from the long regression. Equqation (4) can be generalized to allow multiple omitted variables u. Let R^2_{short} (R^2_{long}) be

[14] More formally: Regress a on c and constant term, determine the residual $\ddot{a}$, and similarly for b, then compute $Corr(\ddot{a},\ddot{b})$. See, e.g., Angrist and Pischke (2009), § 3.2.2.

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the R^2 value from a short (long) regression that omits (includes) u, and let u have rank k, the short regression have df_{short} degrees of freedom, and F_u be the *F*-statistic for the joint significance of the elements of u in the long regression. Define t_u as the positive square root of F_u with a degrees of freedom correction $t_u = [F_u \times \{(k \times df_{short})/(df_{short} + 1 - k)\}]^{1/2}$ and define $\rho^2(a,u)_b$ as the fractional decrease in unexplained variance from adding u to the regression:

$$\rho^2(a,u)_b = \frac{(1 - R^2_{short}) - \left(1 - R^2_{long}\right)}{(1 - R^2_{short})} \tag{5}$$

Then, Equation (4) remains valid for vector u. The HHH results are for OLS, but carry through to FE, because firm-demeaning in FE is equivalent to adding firm dummies in OLS.

OVB arises if an omitted variable partially correlates with *both CGI* and the outcome q. The HHH idea is to imagine that an omitted variable u (partially) predicts *CGI* as strongly (same *t*-statistic) as the strongest included covariate (call this variable x_1) in a regression of the *CG* index on all covariates, and then to make assumptions about how strongly u correlated with q. HHH suggest using values of $\rho(q,u)_{X,CGI}$ from .01-.10. An alternate approach, followed here, is to assume that the correlation between q and u, $\rho(q,u)_{X,CGI}$, equals the largest value of $\rho(q,x_2)_{(rest\ of\ X),CGI}$ that we observe for any included covariate x_2 (which could be the same as or different than x_1). That is, we use the strength of the known covariates to predict *CGI* and q, to estimate the unknown strength of the omitted covariates.

For multiple omitted variables the approach is similar. One imagines that the vector of omitted variables u predicts *CGI* as strongly (because there are multiple omitted variables, "as strongly" is based on the *F*-statistic, instead of the t-statistic used for a single variable) as the strongest one or more of the included covariates X, and also assume that the correlation between q and u, $\rho(q,u)_{X,CGI}$, equals the largest value of $\rho(q,x_2)_{(rest\ of\ X),CGI}$ that we observe for any included covariate or covariates x_2. The HHH approach uses ordinary (not robust or clustered) standard errors.

The HHH approach lets us construct a lower bound β_{lower} as $\beta_{short} - \left|\beta_{short} - \beta_{long}\right|$ estimated from Eqn. (4) using one or more included covariates that strongly predict both *CGI* and q. The intuition is that if $\left|\beta_{short} - \beta_{long}\right|$ is small – if coefficient estimates do not change

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much as one adds more known, strong covariates to a regression, it is less likely that the estimates would change greatly if one could also include omitted variables with similar strength.

The ACETO approach begins with the difference between the coefficient $\hat{\beta}_{narrow}$ from a limited regression that includes only clearly exogenous covariates (in our FE model, only the year and firm effects). One then assumes that there are omitted variables which (i) have the same effect on β as all other covariates taken together; and (ii) would reduce the β estimate.[15] This produces a lower bound on the true FE coefficient:

$$\hat{\beta}_{ACETO} = \hat{\beta}_{FE} - |\hat{\beta}_{narrow} - \hat{\beta}_{FE}| \quad (6)$$

The ACETO lower bound is similar to an HHH lower bound in which one assumes that the omitted variables have the same power to predict *CGI* and q as all included variables taken together.

3 – Data

3.1 – Data for Country-Specific Governance Indices

Brazil: we rely on nonpublic data from three firm surveys that we conducted in 2004, 2006 and 2009. We also obtain information from firm charters and firm annual reports available on the CVM and BOVESPA websites. *India*: we rely on nonpublic data from firm surveys that we conducted in 2006, 2007 and 2012. The data collection through surveys in Brazil and India greatly improves data quality, compared to public data or commercial surveys, but also limits sample size and available years. *Korea*: our sample covers the 1998-2004 period. We rely on nonpublic data from yearly surveys conducted by ourselves (1998-2000) and by the Korea Corporate Governance Service (2001-2004). *Turkey*: we rely on hand-collected data for 2006-2012 from firm corporate governance reports, annual reports, charters, financial statement footnotes, and firm websites.[16]

We exclude state-controlled firms, subsidiaries of foreign companies, and banks. In Brazil the respondents represent 72% of the market capitalization of all public firms. The

[15] ACETO assume that adding covariates will reduce β, and thus use $(\hat{\beta}_{FE} - \hat{\beta}_{narrow})$ instead of the absolute value $|\hat{\beta}_{FE} - \hat{\beta}_{narrow}|$. For our study, adding covariates sometimes increases the β estimate. We therefore use $|\hat{\beta}_1 - \beta_{narrow}|$, which is more conservative and consistent with the spirit of their approach.

[16] In Turkey, in a handful of cases, where an element is missing in year *t* for a particular firm, but equals 1 or 0 for that firm in both the previous year and the next year, we assume it has the same value (1 or 0) in the year where it is missing.

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sample consist of 236 firm-year observations, but only 72 firms answered two or more surveys. India poses similar concerns with partial response to our surveys. In both countries, there is the potential for sample selection bias and an unbalanced panel.[17] In contrast, we have nearly complete coverage of public firms in Korea and Turkey. [18] Table 2 provides summary information on the Brazil sample; Appendix Table A2 contains similar information for the other countries.

Table 3 provides summary statistics for the non-normalized indices and overall country CGI, for each country. Figure 1 shows how the indices evolve over time. There is a strong overall increase in governance scores over our sample period in Korea; an increase in Turkey, but mostly in 2012 (due to board structure reforms that took effect then, see Ararat, Black, and Yurtoglu, 2017); some increase in Brazil (mostly following the creation of Novo Mercado, see Black, De Carvalho and Sampaio, 2014), but little change over time in India.

Table 4 shows the correlations between indices within each country. The correlations are generally positive and are often high enough to give rise to concern about OVB, if one were to study one aspect of governance, without controlling for other aspects. Consider disclosure, for example. The correlation between Disclosure Index and its "Index Complement" (the sum of the other indices) is 0.58 in Brazil, 0.53 in Turkey, 0.46 in Korea, and 0.18 in India. At the same time, the inter-index correlations are not so high as to make it unfeasible to obtain statistically significant results for one index, controlling for the other indices.

3.2 – Covariates

Black et al. (2014) report that the predictive power of CG indices on Tobin's *q* generally shrinks in magnitude if one adds additional covariates. Thus, to reduce the possibility for OVB, we use extensive covariates, including covariates that can predict Tobin's *q*, such as those related to growth and profitability. When running pooled regressions, we use country-specific response surfaces for similar reasons. Table 5 defines our principal covariates and indicates which are available in each country.

[17] In both countries, many nominally "public" firms are small, and have limited public trading. These smaller firms were, unsurprisingly, less likely to respond to our surveys.

[18] For details on the Brazilian surveys, see Black, de Carvalho and Gorga (2012; for India, Balasubramanian, Black and Khanna (2010); for Korea, Black and Kim (2012), and for Turkey, Ararat, Black and Yurtoglu (2017).

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We use the following time-varying covariates, when available. *Firm size: ln*(assets) to control for the effect of firm size on Tobin's *q*. *Firm age*: *ln*(years listed +1), because younger firms are likely to be faster-growing and more intangible-asset-intensive, which can lead to higher Tobin's *q*. *Leverage*: total liabilities/total assets. Leverage can influence Tobin's *q* by affecting income tax benefits and reducing free cash flow problems; it is also mechanically related to Tobin's *q*. *Growth prospects:* geometric sales growth over the last 3 years (or available period, if shorter), because growth prospects directly affect Tobin's *q*. *Profitability:* we use both net income/assets and *EBIT*/sales, because profitability directly affects Tobin's *q*. *Capital intensity and asset tangibility:* we use PPE/sales, capex/PPE, R&D/sales, and advertising/sales. Asset tangibility can both predict Tobin's *q* and affect the governance a firm needs. *Liquidity*: We use share turnover (traded shares/total shares) and free float, since share prices may be higher for firms with more liquid shares.[19] *Ownership*: fractional ownership by the largest shareholder, by foreign investors, and the state, since ownership can affect firm value.[20] *Product market competition:* exports/sales and domestic market share in the firm's principal industry, because competition can substitute for governance in imposing discipline on managers.

In RE regressions we also include *Industry dummies*, defined separately in each country (9 dummies for Brazil, 11 for India, 4-digit Korean SIC codes for Korea, and 2-digit US-equivalent SIC codes for Turkey); *US cross-listing dummy* and *MSCI index dummy*, to proxy for liquidity and foreign investor interest; and *Business group dummy*, because group firms may behave differently than stand-alone firms. Appendix Table A3 reports summary statistics on our outcome variables and covariates and indicates our data sources.

4 – Empirical Results

This section investigates the power of each index to predict Tobin's *q*. We suppress results for covariates, but present them in Appendix Table A4. For each country, we test for

[19] Including share turnover as a covariate could bias against finding an effect of disclosure on Tobin's *q*, if one channel for the effect of governance on Tobin's *q* is through greater liquidity. In unreported results, we find similar results if we remove this covariate.

[20] Including foreign ownership as a covariate could bias against finding an effect of disclosure on Tobin's *q*, if one channel for the effect of governance on Tobin's *q* is through attracting foreign investors, who are diversified across countries and therefore have a lower cost of capital (Merton, 1987). In unreported results, we find similar results if we remove this covariate.

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equivalence of FE and RE coefficients,[21] using both the well-known Hausman test and the less-known but more flexible correlated random effects (CRE) model.[22] In Table 6, the CRE test rejects equivalence of the coefficients only in Turkey, and there only mildly (p = 0.07). This suggests that RE is a reasonable specification, perhaps except in Turkey. Nonetheless, we place principal reliance on the FE results. Because we use normalized indices, the coefficients on CG indices can be interpreted as indicating the predicted percentage change effect on Tobin's q of a one standard deviation (SD) increase in each index.

4.1 – Predictive Power of Disclosure and Board Structure Indices

Our first principal result is the consistent importance of Disclosure Index across all four countries in predicting Tobin's q. In Table 6, the coefficient on Disclosure Index is significant at the 5% level or better in all samples and specifications. For the pooled sample, a one-SD increase in disclosure predicts 4% higher Tobin's q. However, there is substantial variation in the coefficients on Disclosure Index across countries, from 2.3% in Korea to 19.4% in Brazil.

Our second principal result is that Board Structure Index likely has some predictive value, although this is less clear than for Disclosure Index. Board Structure Index takes a positive coefficient in all four countries and in the pooled sample. Board structure is highly significant (1% level or better) in Korea with both RE and FE. In Brazil, it is highly significant with RE and marginally significant with FE. In the pooled sample, it is highly significant with both RE and FE, but not in the weighted FE specification. The weaker FE results for Brazil may reflect the lower power of FE, plus loss of sample size (the Brazil sample has 159 firms with RE, but only 81 with FE). The weak results for India could reflect high legal minimums for board structure (as explained above, legal rules require Indian firms to have either 50% outside directors or else one-third outside directors and a chair who is not also the CEO). Variation above these high minimum levels may not strongly affect firm value.

Our third result involves evidence that other aspects of governance appear not to matter – not to predict Tobin's q. The other indices – for Board Procedures, Shareholder Rights, Ownership Structure, and Related Party Transactions – have no consistent predictive value.

[21] In each country, a Breusch-Pagan test strongly rejects the null hypothesis of no firm effects, which implies that pooled OLS results will be inconsistent.

[22] We test for the equivalence of the two models for the coefficients on all indices taken together.

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None of the coefficients on these indices are significant for both RE and FE, and the signs on the coefficients are mixed.[23]

To be sure, lack of predictive power could reflect the failure of our indices to capture these governance aspects well. However, we investigate the construct validity of these indices in separate work, and find that most indices, in most countries, exhibit reasonable levels of construct validity using standard measures (Black et al., 2017). At the same time, construct validity tends to be lower in India than in other countries, which could help to explain why India Board Structure Index does not predict Tobin's *q*).

4.2 – Disclosure and Board Structure versus Rest of Governance

We have seen in Table 6 that Disclosure Index predicts firm value across all four countries, Board Structure Index does so in Korea and Turkey, but no other index is significant in any country. We further investigate these results by creating two combined indices: *Combined D-BS Index*, which includes the Disclosure and Board Structure indices; and *D-BS Index Complement,* which includes the remaining indices (both normalized to mean = 0, SD =1). Table 7 reports regressions including both combined indices and our usual covariates (we suppress the coefficients for the covariates).

There are two principal results from this analysis. First, Combined D-BS Index predicts Tobin's *q* in all samples and specifications with both RE and FE (all coefficients are statistically significant, except the FE coefficient for India, which is only marginally significant). These strong results are consistent with the results for Disclosure Index and Board Structure Index separately.

The second main result from Table 7 is that even when combined, the other indices have no power to predict firm value. D-BS Index Complement is never statistically significant or marginally significant, except that it takes a marginally significant, *negative* (opposite from predicted) coefficient in Brazil with FE.

These results suggests that a governance index that includes disclosure and board structure can capture much of the overall witin-country effect of governance in predicting firm value. They further suggest that CG indices that do not assess disclosure (including the principal commercial indices covering emerging markets) are likely to have little power to

[23] Ownership structure takes a negative and marginally significant coefficient for Brazil with FE, but a much smaller, statistically insignificant coefficient with RE.

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predict firm value. Our results also suggest that firms, in responding to investor demands for good governance; investors, in assessing governance quality; and perhaps regulators, in seeking to improve the quality of capital markets, can do reasonably well by focusing on disclosure and board structure.

4.3. Lower Bounds Analysis

Table 8 reports an array of lower bound estimates for the FE coefficients on Disclosure Index (Panel A) and Board Structure Index (Panel B). Consider disclosure first. Rows (1)-(4) of Panel A report lower bounds using the HHH approach, using increasingly stringent assumptions about the power of omitted covariates to affect the coefficients on Disclosure Index. Row (5) reports the ACETO lower bounds. Row (1) reports the coefficients and *t*-statistics we would obtain if we could add to the regression a single omitted variable which has the same predictive power (to predict both Tobin's *q* and Disclosure Index) as the observed covariate that most *strongly predicts Tobin's q*. Throughout, we assume that this omitted covariate would reduce the observed coefficient on Disclosure Index. Row (2) is similar, except that we assume that the omitted variable has the same predictive power (to predict both Tobin's *q* and Disclosure Index as the covariate that most *strongly predicts Disclosure Index.* Row (3), applies a more stringent test: it assumes that there are two omitted variables – one that that predicts Tobin's *q* as strongly as the variable used in Row (1), and another that predicsts Disclosure Index as strongly as the variable used in Row (2).[24] In Row (4), we assume that the omitted variable predicts both Tobin's *q* and Disclosure Index as strongly as *all* of the included covariates, taken together. In Row (5), we switch to the ACETO bounds, which also assume an omitted covariate that predicts both Tobin's *q* and Disclosure Index as strongly as all included covariates taken together.

Consider Brazil as an example of the lower bounds analysis. In Row (1), the covariate that most strongly predicts *Tobin's q* is *ln*(assets), with $t = 3.18$. *ln*(assets) also predicts Disclosure Index, but less strongly ($t = 1.63$). If an omitted variable predicted both Tobin's *q* and Disclosure, with similar *t*-statistics, and if included would cause the coefficient on Disclosure Index to fall, that coefficient would fall only slightly from 0.194 ($t = 3.74$) to 0.179 ($t = 3.60$). In Row (2), the covariate that most strongly predicts the Brazil Disclosure Index is

[24] If these two variables happen to be the same, then we assume a single omitted variable in Row (3), and the Row (3) estimate will be the same as the estimates in Rows (1) and (2).

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Shareholder Rights Index, with t = 3.21. However, Shareholder Rights Index only weakly predicts Tobin's q (t = 0.38). Thus, a hypothetical omitted variable with similar power to predict both Tobin's and Disclosure Index would reduce the coefficient on Disclosure Index only from 0.194 to 0.191 (t = 3.82). In Row (3), we assume that there are two omitted variables that predict both Tobin's q *and* Disclosure (t = 3.21) as strongly as *ln*(assets) and Brazil Shareholder Rights Index taken together. The lower bound estimate is now 0.175 (t = 3.51). In Row (4) we assume that an omitted variable or variables would have the same power to predict both *Tobin's q* and Disclosure as all included variables taken together (same F-statistic). Including this strong omitted variable would reduce the coefficient on Disclosure to 0.108 (t = 2.17). Row (5) uses the ACETO approach to gauge the potential for OVB. The coefficient on Disclosure drops slightly to 0.183 (t = 3.68). Thus, our finding that Disclosure Index predicts Tobin's q in Brazil survives even quite strong assumptions about the potential level of OVB.

The lower bounds for Disclosure also remain statistically significant under all of these approaches in Turkey and for the pooled sample. For India and Korea, the results for Disclosure are significant or marginally significant in Rows (1)-(2), but lose significance and have varying signs under the more stringent approaches in Rows (3)-(5). Thus, the lower bound analysis suggests that the results for Disclosure Index are robust to potential OVB in two of our four countries and in the pooled sample. The weaker robustness for India and Korea could reflect the limitations of the disclosure indices in these countries: In India, minimum disclosure rules are fairly high, so additional disclosure above legal minimums could be less important to investors. In Korea we have a limited Disclosure Index, with only three elements.

Panel B reports lower bounds for the FE coefficients on Board Structure Index. The statistically significant results that we find for Korea and the pooled sample show some vulnerability to OVB. The Korea results are reasonably strong, remaining significant in Rows (1)-(3). The pooled results are weaker, and survive only in Rows (1)-(2).

Panel C reports lower bounds for the FE coefficients of the Combined D-BS Index. The lower bounds remain statistically significant at the 1% level under all assumptions for Brazil, Korea, and the pooled sample. In Turkey, the lower bounds are significant at the 5% level in Rows (1)-(3), and lose significance only under the strong assumptions of Rows (4)-(5). In India, Combined D-BS Index is not statistically significant, so the lower bounds are also not significant. Taken as a whole, the lower bounds exercise supports the power of Combined D-BS Index to predict Tobin's q, except in India.

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These results exemplify the importance of conducting the lower bounds analysis. On the one hand, even apparently strong results, such as those for Korea Board Structure Index, which has $t = 4.57$ in Table 6, can be vulnerable to OVB concerns. However, for results which survive the bounds analysis, one gains confidence that OVB is unlikely to explain these results.

4.4 – Aspects of Disclosure and Board Structure Indices

Table 9 drills down into the Disclosure and Board Structure indices. We split Disclosure Index into subindices for Financial and Non-Financial Disclosure, and split Board Structure Index into subindices for Board Independence and Board Committees. A caution: in some countries, we have a small number of index elements, especially when we split the Disclosure and Board Structure indices into subindices. Thus, a statistically insignificant result could either mean that the aspect of governance captured by a particular index is not relevant, or that the index poorly captures the underlying construct.[25]

For Disclosure Index, we find stronger predictive value for financial disclosure than for non-financial disclosure. Financial Disclosure Subindex takes a positive coefficient in all countries, and is statistically significant in the pooled sample and in all countries except India. This suggests that firms' choices to provide improved financial disclosure, above the minimum specified in each country's rules, are valued by investors. Non-financial disclosure also takes a positive coefficient in all countries, but is statistically insignificant in all countries with FE (it is marginally significant in India). Nonetheless, non-financial disclosure is statistically significant when we pool results across all four countries.

For Board Structure Index, we find stronger predictive value for Board Independence Subindex than for Board Committees Subindex. With FE, Board Independence Subindex takes a positive coefficient in all four countries and is statistically significant in Brazil, Korea, and the pooled sample, and nearly so in Turkey. The weaker results for India could reflect India's high legal minimum for board independence, which could limit the value that investors ascribe to additional independence, above that minimum. The results for Board Committees Subindex are much weaker. This subindex is positive and significant only in Korea, and has mixed signs for Brazil, Turkey and the pooled sample. These weak results for Board Committees help to

[25] In Korea, for example, Disclosure Index has only three elements: English language disclosure; firm has regular meetings with analysts, and board member backgrounds are disclosed. We place the first two elements into Financial Disclosure Subindex and the third into Non-Financial Disclosure Subindex.

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explain why the results for Board Independence (Table 10) are stronger than for Board Structure (Table 6). They also suggest that committee existence and structure is not a large factor in investors' valuation of firms.

4.5 – Results for Individual Elements, Subsamples, and Alternate Outcome Measure

4.5.1. Individual Governance Elements

In Appendix Table A5, we assess whether the power of Disclosure Index and Board Structure Index to predict Tobin's *q* comes from specific individual elements of each index, or from the combined power of a number of different elements. We assess the power of each element of Disclosure Index in a regression where we separately control for the other indices (as we do throughout) and also control for a reduced Disclosure Index, consisting of the other elements of this index. We assess the power of individual elements of Board Structure Index in a similar manner. With this approach, there is no evidence that individual disclosure elements have power. On the other hand, across all disclosure elements and all four countries, 37 of the 50 coefficients on country-specific disclosure elements are positive ($p = .0009$ in a sign test). The tendency for disclosure elements to take positive coefficients in predicting Tobin's *q* is consistent with investors valuing overall disclosure, rather than specific disclosure items.

For Board Structure Index, we again find limited power for individual elements, except for Korea. In Korea, whether a firm has *at least* 50% independent directors takes a strong positive coefficient (0.040; $t = 2.85$); whether a firm has *more than* 50% independent directors takes a positive and marginally significant coefficient (0.038; $t = 1.84$); and both elements, included in a single regression, are jointly powerful ($F = 6.42$; $p = 0.002$). Thus, we find evidence that in Korea, investors value firms having majority-independent boards.

4.5.2. Results for Subsamples

In Appendix Table A6, we also assess whether our results are driven by specific subsamples. We split the sample along several dimensions: manufacturing versus other firms, large versus small firms, high- versus low-profitability firms, high- versus low-growth firms, firms that are part of a business group versus non-group firms, old versus young firms, and US-cross-listed versus other firms. We find evidence that high-growth firms benefit more than low-growth firms from improved disclosure (although both groups benefit) – the difference in

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coefficients is positive in all four countries, and significant for Brazil and in the pooled and pooled-weighted regressions. We also find milder evidence that high-profitability firms may benefit more than low-profitability firms from both improved disclosure (difference in coefficients significant in the pooled but not in the pooled weighted or individual country regressions) and improved board structure (differences significant in the pooled and pooled-weighted regressions, but only mildly so, and not in individual country regressions). We also find hints that cross-listing in the U.S. may be a substitute for disclosure and board structure reform.[26] At the same time, most coefficients are not significantly different across subsamples, and often the differences we find are not consistent across countries. These results suggest that our overall results on the value of disclosure and board structure apply to most firms, rather than being limited to particular subsamples.

4.5.3. Alternative Outcomes: ln(Market Value) and Industry-Adjusted Tobin's q

Tobin's *q* has well-known limitations as a measure of firm value (e.g., Bartlett and Partnoy, 2018). In Appendix Table A7, we therefore use *ln*(market value), with market value = market value of equity + book value of debt (the numerator for Tobin's *q*), as an alternative measure. Our results for Disclosure and Board Structure indices weaken in Korea, but remain marginally significant. Results for other countries and the pooled sample are similar to those we find with Tobin's *q* as an outcome variable.

We also use industry-adjusted Tobin's *q* as an outcome variable and report results in Appendix Table A8. Overall, results are similar to those we report for unadjusted *q*. Turkey is an exception; Disclosure Index is a significant predictor of *ln*(industry-adjusted *q*) with firm RE but loses significance with firm FE.

5 – Evidence on Possible Channels: Profitability and Liquidity

Our results indicate that firm-level-country-specific Disclosure and Board Structure indices predict firm market value. As discussed above, two plausible channels for these effects

[26] For cross-listing, the differences between the U.S.-cross-listed and non-U.S.-cross-listed subsamples are not significant. This likely reflects a limited number of cross-listed firms (with FE, only 20 firms in Brazil; 35 in India; 25 in Korea; and 25 in Turkey). However, there is some evidence that Disclosure Index and Board Structure Index predict Tobin's *q* strongly for non-cross-listed firms, perhaps (the strongest statement we can make) more so than for cross-listed firms. This suggests that US cross-listing may substitute, in part, for the value that improved disclosure and board structure would otherwise provide.

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involved an effect of board structure, disclosure, or both on firms' liquidity or profitability. In this section, we assess the evidence for each of these channels, using a firm FE specification.

We cannot fully test for a third plausible channel: improved disclosure and greater board independence could also reduce the risk that controllers will tunnel value away from minority shareholders. See Shleifer and Wolfenzon (2002) for theory and Black et al. (2015) for natural experiment-based evidence for this channel for Korea. This channel can involve both higher reported cash flows due to reduced current tunneling, which is testable, because it will be reflected in current reported profitability,[27] and higher valuation for the same reported cash flows, due to reduced risk of future tunneling (Atanasov, Black, and Ciccotello, 2014, which is not testable with our data.

5.1. Evidence for a Profitability Channel

Table 10 investigates the relation between governance indices and profitability, measured by return on assets (ROA). The regression specification is similar to Table 6, except that the outcome variable is ROA and we drop Net Income/assets and EBIT/Sales as covariates, because these also measure profitability. Only scattered coefficients are statisticaly significant, suggesting a weak link between CG and reported profitability. Board Structure Index is not significant in any country. Disclosure Index is positive and significant in Brazil, but takes a small, insignificant, and sometimes negative coefficient in other countries and in the pooled regressions.

The other indices do not predict Tobin's *q*, so we would not expect them to predict ROA. Actual results are scattered and mixed: Board Procedure Index takes a positive, marginally significant coefficient in India and Turkey; Shareholder Rights Index takes a negative, significant coefficient in Brazil and Turkey; Ownership Structure Index is insignificant in all four countries; and all indices are insignificant for the pooled sample. We conclude that better governance appears to principally improve the price investors are willing to pay for the same reported cash flows, rather than affecting the magnitude of these cash flows.

[27] The difference between the higher profitability channel and the less tunneling channel is that the first involves improved firm performance, while the second involves minority shareholders seeing more of the profits that the firm was already earning.

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5.2. Evidence for a Liquidity Channel

Next, we assess the liquidity channel. Our measure of liquidity is the fraction of trading days with zero returns for each year. This is a crude measure, but Lesmond (2005) provides evidence that zero-return days are a better proxy for liquidity than trading volume or several other measures in international settings, and shows that measures of transaction costs such as bid-ask spreads, computed from transaction-level data, are correlated with zero-return days. Similarly, Ashbaugh-Skaife, Gassen, and LaFond (2006) find that zero-return-days provide a useful summary measure of the extent to which firm-specific information is impounded in price.

We report results from firm FE regressions in Table 11. The regression specification is again similar to Table 6, except that the outcome variable is zero-return days, and we drop share turnover as a covariate, because turnover is also a measure of liquidity. The coefficients on Disclosure Index are mixed. The coefficient on Board Structure Index are negative but not statistically significant in all four countries (better board structure predicts fewer zero-return days), but become significant when we pool results across countries. These results hint that improved board structure may lead to improved liquidity, but no more than this.[28] The results for the other indices are also mixed.

6 – Conclusion

Prior research in emerging markets provides evidence that firm-level CG choices, measured using broad CG indices, can predict firm market value, but only if those indices are country-specific. We assess here which aspects of governance drive these results for overall indices. We use the strongest available empirical strategy, with firm FE, controls for other aspects of governance, extensive covariates, and country-specific response surfaces in pooled regressions. We also provide a lower bounds analysis in which we assess how likely it is that plausible levels of OVB could explain our results.

We find that country-specific disclosure indices, which capture firm-level disclosure choices, predict higher Tobin's *q* across four major emerging markets: Brazil, India, Korea, and Turkey, and when pooled across countries. The power of disclosure to predict Tobin's *q* comes primarily from financial disclosure. We also find that country-specific board structure

[28] We also considered share turnover, as an alternate measure of liquidity, but find no evidence that Board Structure, Disclosure or other aspects of CG predict share turnover.

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indices predict Tobin's *q*, but only in some countries. The power of the board structure indices to predict Tobin's *q* comes primarily from board independence, rather than board committees. A combined index comprising Disclosure and Board Structure indices predicts Tobin's *q* in all countries. Our lower bounds estimates provide evidence that our principal results, for Disclosure Index, and Combined D-BS Index, are reasonably robust to OVB, but our Board Structure results are more vulnerable to plausible levels of OVB.

However, the other indices we study – board procedure, shareholder rights, ownership, and control of RPTs – have no predictive value in any of our four countries, when pooled across all four countries, or when combined into a single index.

We look for evidence on two plausible channels for the effect of disclosure and board structure on firm market value and largely come up empty, with no support for a profitability channel, and only mild evidence that board structure predicts improved liquidity. Understanding the channels through which disclosure and board structure affect firm value thus remains a fruitful topic for further research.

Our results have important policy implications. They suggest that both firms, in responding to investor demands for good governance; and investors, in assessing governance quality, can do reasonably well in focusing on disclosure and board structure. Furthermore, since CG regulations are costly for firms, regulators could do well to focus on these two aspects.

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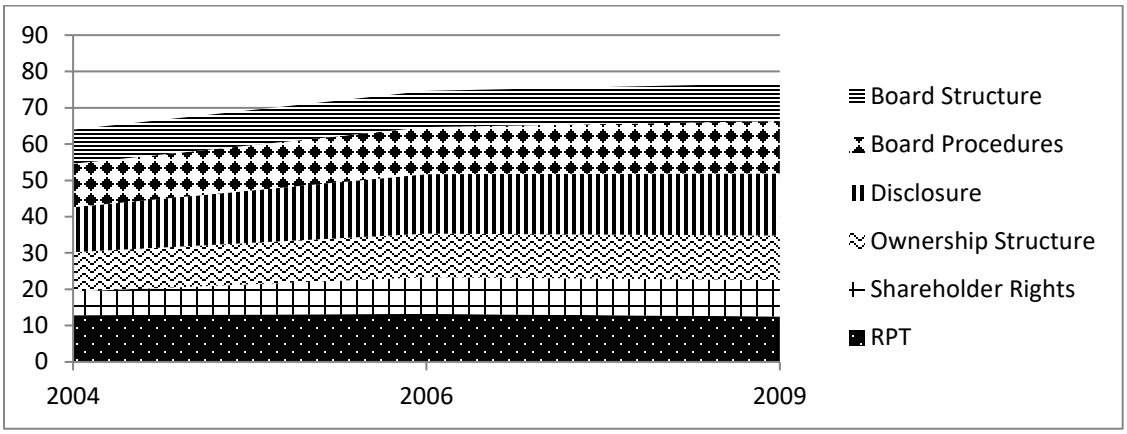
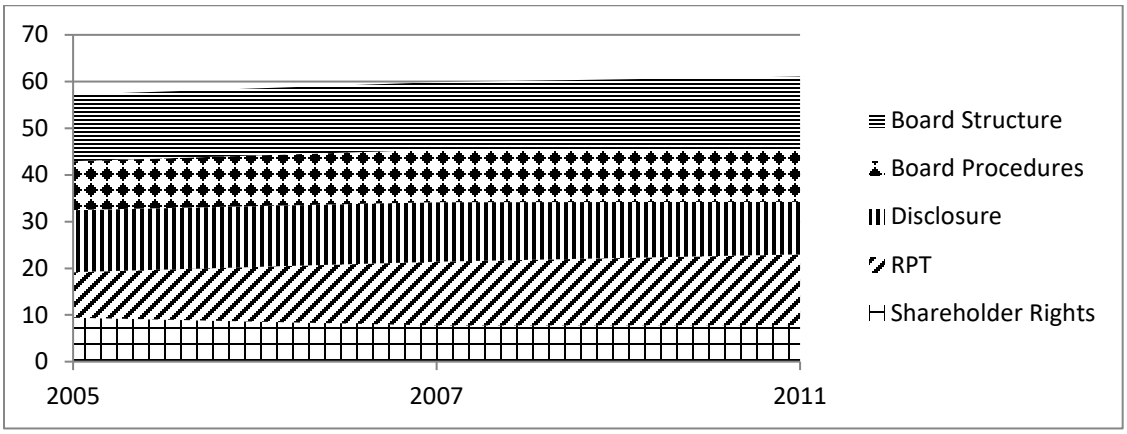
Figure 1. Change in Country *CGI* Indices and Component Indices over Time

Charts show mean values of country *CGI* and each component index over time. See Table 1 for sample sizes.

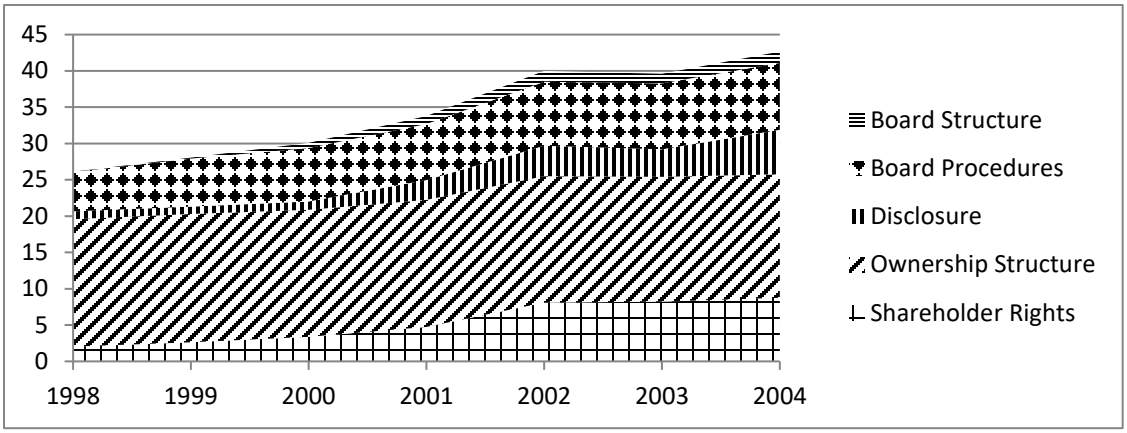
Brazil



India



Korea



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Turkey

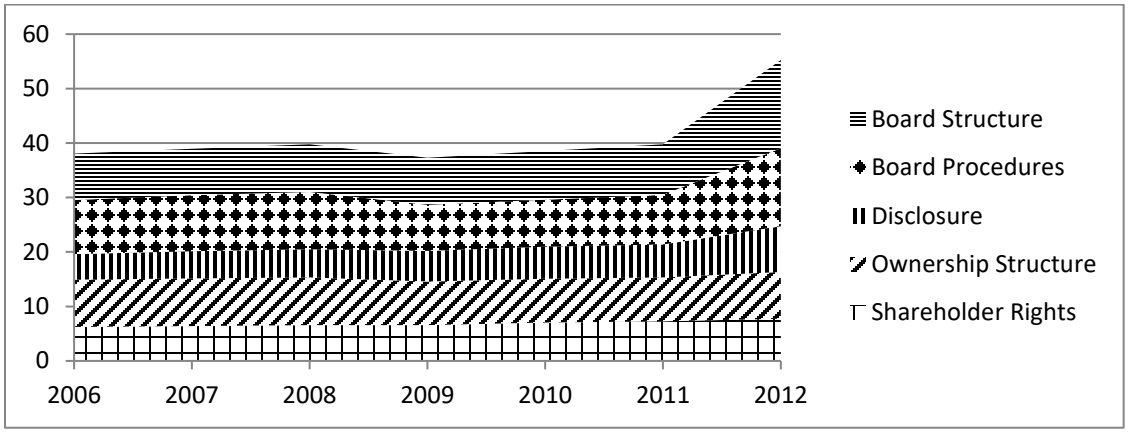

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Table 1. List of Governance Elements in each Country

This table indicates the elements we use in each country for Board Structure Index and Disclosure Index. Appendix Table A1 contains similar information for all elements of all indices. In each element label, the first letter indicates the country, the next ones the subindex that the element belongs to, and next the number of the element within that subindex (e.g., i_dis_11 is element 11 of Disclosure Index, for India). Elements in boldface are used as index elements. An element not boldfaced is available and potentially meaningful, but is not included in the index because it is too similar to another element that is used. NP (non-public): not publicly available. NA (not available): element is non-public and not collected in our private surveys. NM (not meaningful) because mandatory, not allowed, too rare or too common. We use "outside" and "independent" directors interchangeably.

For additional details on the elements, see the expanded working paper version of Black et al. (2014). Since completing that paper, we: (i) removed two Turkey-specific elements from Board Structure Index (elements bs_6 and bs_10), (ii) classified elements bs_13, bs_14, bs_15 and bs_20 as part of Board Independence Subindex rather than Board Committee Subindex, and (iii) redefined bs_7, compared to Black et al. (2014), where we defined this variable as "CEO is NOT board chairman" *and* "≥ one-third outside directors." We did not renumber any elements.

ELEMENTS	BRAZIL	INDIA	KOREA	TURKEY
Board structure index - *Independence elements*				
≥ 1 outside director on board	**b_bs_1 (NP)**	NM	NM	**t_bs_1**
> 1 outside director	b_bs_2 (NP)	NM	NM	**t_bs_2**
≥ 30% outside directors	**b_bs_3(NP)**	NM	NM	t_bs_3
≥ 50% outside directors	**b_bs_4 (NP)**	**i_bs_4**	**k_bs_4**	NM
strictly > 50% outside directors	NM	**i_bs_5**	**k_bs_5**	NM
CEO is NOT board chairman and ≥ 50% outside directors	**b_bs_7**	**i_bs_7**	NA	**t_bs_7**
Board chairman is outside director or firm has outside lead director	NM	NA	**k_bs_8**	NM
≥ 50% outside directors **or** ≥ 1/3 outside directors *and* CEO is not chairman[29]	b_bs_9 (NP)	**i_bs_9**	NA	NM
Audit comm. has outside director	NA	NA	NM	**t_bs_13**
Audit comm. has majority of outsiders	NM	**i_bs_14 (NP)**	k_bs_14	NA
Audit comm. has 2/3 outsiders	NM	i_bs_15 (NP)	**k_bs_15**	NA
Permanent fiscal board **or** audit comm. with minority shareholder representative exists	**b_bs_20**	NM	NM	NM
Board structure index - *Committee elements*				
Audit committee exists	**b_bs_11**	NM	**k_bs_11**	NM
Audit comm. has non-executive chair	NA	NA	NM	**t_bs_12**
Compensation committee. exists	NM	**i_bs_16**	**k_bs_16**	NA
Outside director nominating committee. exists	NM	NA	**k_bs_17**	NA
Corporate Governance committee. exists	NM	NA	NM	**t_bs_18**
Permanent or near-permanent fiscal board exists	**b_bs_19**	NM	NM	NM
Disclosure index - *Financial disclosure elements*				
RPTs are disclosed to shareholders	**b_dis_1 (NP)**	**i_dis_1**	NA	NM
Firm has regular meetings with analysts	**b_dis_2 (NP)**	**i_dis_2**	**k_dis_2 (NP)**	NA
Firm puts annual financial statements on firm website	**b_dis_3**	**i_dis_3**	NA	**t_dis_3**
Quarterly financial statements are consolidated	**b_dis_4**	NA	NA	NM
Firm puts quarterly financial statements on firm website	**b_dis_5**	**i_dis_5**	NA	**t_dis_5**
Firm puts annual report on firm website	NA	**i_dis_6**	NA	**t_dis_6**
English language financial statements exist	**b_dis_7**	NM	**k_dis_7 (NP for past data)**	**t_dis_7**

[29] This element is required by India's "Clause 49;" however, not all firms comply.

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ELEMENTS	BRAZIL	INDIA	KOREA	TURKEY
Financial statements include statement of cash flows	**b_dis_8**	NM	NM	NM
Financial statements in IFRS or US GAAP	**b_dis_9**	NA	NM	NM
MD&A discussion in financial statements	**b_dis_10**	NM	NM	NA
Disclosure index - ***Non-financial disclosure elements***				
Firm discloses 5% shareholders	Feasible, (NM)	**i_dis_11**	NM	Feasible
Controlling shareholder disclosed	NM	NM	NM	**t_dis_12**
If shareholder agreement among controlling shareholders exists, it is disclosed (could be no control group or no agreement)	NA	**i_dis_13**	NA	NA
Firms puts directors' report on firm website	NM	**i_dis_14**	NM	NM
Firm puts corporate governance report on firm website	NM	**i_dis_15**	NM	**t_dis_15**
Firm discloses material events on firm website	NA	NA	NA	**t_dis_16**
Firm discloses annual agenda of corporate events	**b_dis_17**	NA	NA	**t_dis_17**
Firm charter available on firm website	NA	NA	NA	**t_dis_18**
Executive director compensation policy disclosed	NM	NA	NM	**t_dis_19**
Firm puts shareholder voting information on firm website	NM	NA	NA	**t_dis_20**
Firm discloses list of insiders	NM	NA	NA	**t_dis_21**
Firm discloses shareholding by individual directors	NM	NA	NM	**t_dis_22**
Governance charter or guidelines disclosed	NA	NA	NM from 2000	**t_dis_23**
Annual meeting results disclosed (attendance, agenda, voting results)	NM	NA	NM	**t_dis_24**
Board members' roles/employment disclosed	NM	NA	NM	**t_dis_25**
Board members' background disclosed	NM	NA	**k_dis_26**	**t_dis_26**
Board members date of joining board disclosed	NM	NA	NM	**t_dis_27**
Background of senior managers disclosed	NA	NA	NA	**t_dis_28**
Number of board meetings disclosed	NM	Feasible (NP)	NM from 2000	**t_dis_29**
Board resolutions disclosed	NA	NA	NM from 2000	**t_dis_30**
Code of conduct or ethics disclosed	NA	NM	NA	**t_dis_31**
Information on internal audit/control disclosed	NA	NA	NM	**t_dis_32**
Auditor does not provide non-audit services	**b_dis_33**	**i_dis_33**	NA	NA
Auditor does not provide non-audit services, or non-audit fees are < 25% of total auditor fees	NA	**i_dis_34**	NA	NA
Full board reviews auditor's recommendations	NA	**i_dis_35**	NA	NA
Audit partner is rotated every 5 years	NM	**i_dis_36**	NA	NA

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Table 2. Sample Coverage for Brazil

Total number of firms and market capitalization for all firms which responded to the 2004, 2006 and 2009 Brazil corporate governance surveys. Market capitalization is based on exchange rate at Dec. 31, 2009 of R$1.75/US$1. Market capitalization and number of Brazilian private firms are measured at end of survey year (for "overlap" rows, most recent year). Last row reflects respondents that were public in 2009 and were in the dataset in at least one year. All data excludes SOEs, banks, and subsidiaries of foreign companies.

The coverage description for India, Korea and Turkey is in Table A2 in the appendix. For Korea (and Turkey) our sample includes almost all public firms listed on the Korea Stock Exchange (and Borsa Istanbul). For Brazil and India, we rely on private surveys.

Survey Year	Total No. of Public firms	No. of Sample Firms (% out of all public firms)	Market Capitalization (US$ billion)	Capitalization of Responding Firms (% out of all public firms)
2004	261	63 (24%)	524	260 (49%)
2006	233	92 (39%)	821	495 (60%)
2009	254	97(38%)	1,191	747 (62%)

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Table 3. Summary Statistics for Corporate Governance Indices

Sample is pooled across years. Country indices are non-normalized (average of non-normalized subindices, each 0~100). Between standard deviation is computed across firms $\left(=\sqrt{1/(N-1)\sum_i(\bar{x}_i-\bar{x})^2}\right)$; within standard deviation is computed within each firm over time $\left(=\sqrt{1/(NT-1)\sum_i\sum_t(x_{it}-\bar{x}_i)^2}\right)$, where N = number of firms, T = number of years, x_{it} is governance index of firm i in year t, $\bar{x}_i$ is the mean value for firm i, and $\bar{x}$ is the mean value over all firms and years.

Subindex	Brazil							India						
	Mean	Median	Std. Dev.			Min	Max	Mean	Median	Std. Dev.			Min	Max
			Overall	Between	Within					Overall	Between	Within		
Disclosure	78.78	90.91	24.65	24.37	7.98	18.2	100	63.15	61.54	20.11	17.40	24.68	15.4	100
Financial disclosure	80.09	88.89	26.48	26.32	8.31	11.1	100	62.47	60.00	30.00	25.40	18.92	0	100
Non-financial disclosure	72.87	100.00	29.32	28.05	12.94	0	100	62.16	50.00	27.67	23.15	18.09	0	100
Board Structure	50.02	57.14	21.67	19.92	9.41	0	100	73.54	83.33	19.75	18.00	10.45	0	100
Board independence	55.52	50.00	25.49	24.71	11.51	0	100	67.78	75.00	25.05	23.11	13.15	0	100
Board committees	42.69	66.67	35.58	33.60	12.78	0	100	85.06	100.00	26.18	22.89	15.81	0	100
Ownership Structure	58.95	57.44	15.95	15.06	5.71	26.3	91.3	-	-	-	-	-	-	-
Board Procedure	66.4	66.67	25.03	23.22	11.78	0	100	54.43	53.85	17.07	15.35	9.38	7.7	100
Minority Shareholder Rights	46.37	57.14	26.32	25.34	7.35	0	100	41.91	50.00	17.33	14.80	10.86	0	100
Related Party Transactions	64.42	80.00	30.82	27.72	16.03	0	100	62.70	66.67	29.13	24.70	18.43	0	100
Country *CGI*	60.82	63.03	13.63	12.98	4.99	20.1	90.1	59.17	59.87	10.78	9.58	6.22	24.6	86.9

Subindex	Korea							Turkey						
	Mean	Median	Std. Dev.			Min	Max	Mean	Median	Std. Dev.			Min	Max
			Overall	Between	Within					Overall	Between	Within		
Disclosure	14.33	0	23.71	19.76	13.98	0	100	60.98	65.22	22.59	18.99	13.38	0	100
Financial disclosure	12.74	0	24.95	21.01	14.38	0	100	76.88	80.00	28.15	22.43	17.94	0	100
Non-financial disclosure	17.55	0	37.68	31.46	22.60	0	100	55.42	58.82	22.73	19.26	13.18	0	100
Board Structure	9.09	0	18.36	15.28	10.97	0	100	49.21	50.00	24.92	20.01	16.39	0	100
Board independence	8.38	0	23.85	19.80	14.75	0	100	52.72	40.00	24.20	20.23	14.66	0	100
Board committees	11.80	0	23.36	18.33	15.13	0	100	43.25	33.33	35.53	26.86	25.07	0	100
Ownership Structure	86.99	94.00	16.29	15.80	7.02	10.2	100	42.01	36.98	17.50	17.79	5.32	0	100
Board Procedure	38.88	40.00	17.31	14.25	11.23	0	100	50.70	60.00	27.46	22.63	16.42	0	100
Minority Shareholder Rights	40.17	25.00	36.99	27.69	22.49	0	100	34.23	25.00	20.12	16.25	12.90	0	100
Related Party Transactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Country *CGI*	33.93	32.07	11.00	8.78	7.23	7.9	88.3	47.43	46.82	14.26	12.02	8.49	10.2	83.0

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Table 4. Correlations between Indices

Correlations between indices, and between each index and country *CGI* (average of all indices) and index complement (average of other indices). Significant coefficients, at 5% or better, are in **boldface**.

	Disclosure	Board Structure	Board Procedure	Ownership Structure	Shareholder Rights	RPTs
Brazil CGI	**0.762**	**0.485**	**0.564**	**0.376**	**0.702**	**0.453**
Index complement	**0.579**	**0.244**	**0.298**	**0.182**	**0.471**	0.086
Disclosure	1					
Board Structure	**0.197**	1				
Board Procedure	**0.406**	**0.284**	1			
Ownership Structure	**0.241**	-0.105	0.052	1		
Shareholder Rights	**0.614**	**0.232**	**0.158**	**0.296**	1	
RPTs	0.103	0.051	-0.001	0.044	0.074	1
India CGI	**0.696**	**0.336**	**0.674**		**0.231**	**0.513**
Index complement	**0.177**	**0.093**	**0.242**		0.045	**0.138**
Disclosure	1					
Board Structure	0.039	1				
Board Procedure	**0.197**	**0.076**	1			
Shareholder Rights	**0.078**	-0.013	**0.139**		1	
RPTs	**0.095**	**0.090**	**0.170**		-0.048	1
Korea CGI	**0.706**	**0.741**	**0.696**	**0.264**	**0.619**	
Index complement	**0.462**	**0.519**	**0.470**	**-0.097**	**0.479**	
Disclosure	1					
Board Structure	**0.424**	1				
Board Procedure	**0.368**	**0.446**	1			
Ownership Structure	**-0.067**	**-0.061**	**-0.124**	1		
Shareholder Rights	**0.384**	**0.397**	**0.398**	**-0.048**	1	
Turkey *CGI*	**0.930**	**0.653**	**0.689**	**0.174**	**0.346**	
Index complement	**0.533**	**0.421**	**0.539**	**0.057**	**0.268**	
Disclosure	1					
Board Structure	**0.429**	1				
Board Procedure	**0.526**	**0.407**	1			
Ownership Structure	**0.055**	0.011	0.041	1		
Shareholder Rights	**0.203**	**0.147**	**0.278**	**0.058**	1	

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Table 5. Definitions for Outcomes and Non-Governance Covariates

Income statement (balance sheet) amounts are measured for each year *t* (at end of year *t*). * = winsorized at 99% (** = winsorized at 1%/99%) in Tables 6-8. See Appendix Table A3 for means and standard deviations, and data sources.

	Definitions	**Avail**
Outcomes		
Tobin's *q*	(book value of debt + market value of common stock)/ book value of assets	BIKT
ln(market value)	natural logarithm of (book value of debt + market value of common stock)	BIKT
Zero-return days	fraction of trading days with zero returns	BIKT
ROA (EBIT/assets)**	Earnings before interest and tax (EBIT)/assets	BIKT
Industry-adjusted ROA**	ROA – Annual average ROA at the two-digit SIC code level	BIKT
Covariates		
ln (assets)	natural logarithm of book value of assets in USD	BIKT
ln (listed years)	natural logarithm of (years since public listing + 1) India: years since incorporation	BIKT
Leverage*	(Total liabilities)/assets. India: total debt	BIKT
Net Income/assets**	Ratio of net income over assets	BIKT
EBIT/sales**	EBIT/sales	BIKT
3-yr sales growth**	Geometric average sales growth during past three years (or available period if less)	BIKT
PPE/sales*	Ratio of property, plant, and equipment (PPE) to sales	BIKT
Share turnover*	(shares traded in year *t*)/(shares outstanding), adjusted for share issuances and splits	BIKT
Inside ownership	Fractional ownership of common (and equivalent) shares by largest shareholder	BKT
Foreign ownership	Fractional ownership by foreigners	IKT
State ownership	Fractional ownership by the state	BIKT
Free Float	Fraction of shares floating on the stock exchange (excludes shares held by insiders)	KT
Capex/PPE*	Ratio of capital expenditures to PPE	IKT
R&D/sales*	Ratio of R&D expenditures to total sales	IKT
Advertising/sales*	Ratio of advertising expense to total sales	IK
Exports/sales*	Ratio of export revenue to total sales	IKT
Market share	Firm's share of sales by all public firms in same industry	KT
Business group	1 if firm belongs to business group in year *t*, 0 otherwise	BIKT
MSCI	1 if firm belongs to Morgan Stanley Capital International Index (MSCI), 0 otherwise	BIKT
US cross listing	1 if cross-listed in US (any level) in year *t*, 0 otherwise	BIKT
Industry dummies	country specific; mapped to US 2-digit SIC codes	BIKT

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Table 6. Governance Indices and Firm Value across Countries

Table shows coefficients for firm random effects (RE) and firm fixed effects (FE) regressions of *ln*(Tobin's *q*) on governance indices, covariates, year dummies, and constant term. Indices are normalized (mean =0; σ=1). Covariates are listed in Table 5. Time-invariant dummy variables (industry, business group, US cross listing, MSCI) drop out with firm fixed effects. Random effects regressions include industry dummies. Covariates, year dummies, and constant term are interacted with country dummies in the pooled regressions. FE sample excludes firms observed only once. Observations are excluded as outliers if a studentized residual from regressing *ln*(Tobin's *q*) on country *CGI*, year-by-year > ±1.96. *t*-statistics, using firm clusters, are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Values for joint significance of disclosure and board structure (F-test), Breusch-Pagan (χ^2), and correlated random effects (CRE) F-test are *p*-values. Hausman (CRE) test is for joint significance of differences between RE and FE coefficients for all variables (governance indices). R^2 is overall R^2 for RE and within R^2 for FE regressions. Significant results (at 5% level or better) are in **boldface**.

Sample	**Brazil**		**India**		**Korea**		**Turkey**		**Pooled BIKT Sample**		
Specification	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**Weighted FE**
Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**
Disclosure	**0.144*** (4.14)**	**0.194*** (3.74)**	**0.072** (2.23)**	**0.095** (2.22)**	**0.026*** (3.91)**	**0.023*** (3.12)**	**0.077*** (3.71)**	**0.070*** (3.02)**	**0.035*** (4.73)**	**0.033*** (4.36)**	**0.046*** (3.45)**
Board Structure	**0.082*** (3.09)**	0.065 (1.57)	0.030 (1.24)	0.010 (0.31)	**0.028*** (4.37)**	**0.033*** (4.57)**	-0.001 (-0.06)	0.016 (0.79)	**0.024*** (3.16)**	**0.025*** (3.04)**	0.017 (1.24)
Board Procedure	-0.006 (-0.27)	-0.001 (-0.03)	-0.025 (-0.88)	-0.029 (-0.67)	0.007 (1.31)	0.006 (0.94)	-0.003 (-0.17)	-0.008 (-0.44)	0.001 (0.20)	0.002 (0.28)	-0.007 (-0.69)
Shareholder Rights	0.016 (0.48)	-0.028 (-0.41)	0.006 (0.21)	0.018 (0.49)	0.001 (0.07)	0.001 (0.07)	0.011 (0.71)	0.006 (0.41)	0.007 (0.62)	0.003 (0.22)	0.006 (0.43)
Ownership Structure	-0.014 (-0.50)	**-0.099** (-2.04)**			*-0.012** *(-1.68)*	*-0.015** *(-1.74)*	0.013 (0.61)	*0.062** *(1.97)*	0.004 (0.50)	0.003 (0.30)	-0.001 (-0.04)
Related Party Transactions	-0.018 (-0.84)	-0.033 (-1.32)	0.014 (0.53)	0.030 (1.03)					-0.017 (-0.62)	0.009 (0.27)	0.008 (0.24)
Joint significance	0.0000	0.0015	0.0557	0.0803	0.0000	0.0000	0.0052	0.0068	0.0000	0.0000	0.0000
Hausman test	0.0000		0.0053		0.0000		0.0000		0.0000		
CRE test	0.20		0.39		0.20		0.07		0.32		
Random effects λ	0.384		0.304		0.614		0.715		0.758		
R^2	0.426	0.589	0.411	0.447	0.541	0.393	0.424	0.490	0.465	0.409	0.439
Number of firms	165	83	400	198	646	644	195	193	1,406	1,118	1,118
Number of observations	248	166	607	405	3,191	3,189	1,094	1,092	5,140	4,855	4,855

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Table 7. Combined Disclosure and Board Structure Index

Table shows coefficients for RE and FE regressions of *ln*(Tobin's *q*) on Combined D-BS Index, D-BS Index Complement, covariates, year dummies, and constant term. Combined D-BS Index is renormalized (sum of normalized Disclosure Index and normalized Board Structure Index). D-BS Index Complement is renormalized (sum of remaining normalized indices). Covariates (listed in Table 5), sample, and exclusion of outliers are the same as in Table 6; coefficients on covariates are suppressed. *t*-statistics, using firm clusters, are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are in **boldface**.

		Brazil	India	Korea	Turkey	BIKT Pooled	BIKT Pooled Weighted
RE	**Combined D-BS Index**	**0.176*** (5.83)**	**0.066** (2.21)**	**0.045*** (6.21)**	**0.046** (2.32)**	**0.046*** (5.37)**	
	D-BS Index Complement	-0.015 (-0.59)	0.005 (0.20)	0.008 (1.14)	0.020 (1.02)	0.005 (0.61)	
	Observations	248	607	3,191	1,094	5,140	
	Firms	165	400	646	195	1,406	
FE	**Combined D-BS Index**	**0.194*** (3.54)**	0.059 (1.47)	**0.046*** (5.85)**	**0.054** (2.28)**	**0.047*** (5.27)**	**0.050*** (2.72)**
	D-BS Index Complement	*-0.057** *(-1.81)*	0.034 (1.12)	0.006 (0.86)	0.017 (0.78)	0.004 (0.41)	0.002 (0.11)
	Observations	166	405	3,189	1092	4,855	4,855
	Firms	83	198	644	193	1,118	1,118

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Table 8. Lower bounds on FE estimates for Disclosure and Board Structure Subindices

Table presents lower bounds on FE estimates for Disclosure Index (Panel A), Board Structure Index (Panel B), and Combined D-BS Index (Panel C) using Hosman, Hansen and Holland (2010) (HHH) and Altonji, Conley, Elder, Taber – Oster (ACETO) methods. *Lower bound 1*: HHH under the assumption that the omitted covariates have predictive power as strong as the strongest observed predictor of *q* (largest *t*-statistic or, for pooled regressions, largest F-statistic). *Lower bound 2*: HHH assuming that the omitted covariates have predictive power as strong as the strongest observed predictor of the governance index considered. *Lower bound 3*: HHH assuming the omission of a single variable that has power to predict *q* equal to the strongest predictor of *q* (variable used in from row 1) *and* power to predict governance equal to the strongest predictor of governance (variable used in row 2). *Lower bound 4*: HHH assuming that the omitted covariates have predictive power as strong as all observed covariates. *Lower bound 5*: ACETO (same assumption as Lower bound 4 but distinct methodology). *t*-statistics are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are in **boldface**.

Omitted variables have same predictive power as strongest predictor of			Brazil	India	Korea	Turkey	BIKT Pooled
Panel A. Disclosure							
FE estimates from Table 6			**0.194*** (3.74)**	**0.095** (2.22)**	**0.023*** (3.12)**	**0.070*** (3.02)**	**0.033*** (4.36)**
HHH	**(1)**	***q***	**0.179*** (3.60)**	0.079* (1.80)	**0.019*** (2.47)**	**0.066*** (2.77)**	**0.039*** (4.33)**
	(2)	**governance index**	**0.191*** (3.72)**	**0.090*** (2.05)**	**0.019*** (2.46)**	**0.066*** (2.78)**	**0.039*** (4.31)**
	(3)	**predictors of both (1) + (2)**	**0.175*** (3.51)**	0.046 (1.05)	-0.001 (-0.15)	**0.065*** (2.75)**	**0.033*** (3.80)**
	(4)	**all covariates**	**0.108** (2.17)**	-0.019 (-0.43)	-0.006 (-0.72)	**0.046** (1.96)**	**0.032*** (3.62)**
ACETO	**(5)**	**all covariates**	**0.183*** (3.68)**	-0.008 (-0.19)	0.012 (1.53)	**0.048** (2.04)**	**0.031*** (3.49)**
Panel B. Board Structure							
FE estimates from Table 6			0.065 (1.57)	0.010 (0.31)	**0.033*** (4.36)**	0.016 (0.79)	**0.025** (3.04)**
HHH	**(1)**	***q***	0.059 (1.59)	0.006 (0.16)	**0.032*** (4.31)**	-0.006 (-0.01)	**0.019** (2.12)**
	(2)	**governance index**	0.068* (1.82)	0.016 (0.41)	**0.032*** (4.31)**	-0.006 (-0.01)	**0.020** (2.22)**
	(3)	**predictors of both (1) + (2)**	0.056 (1.51)	-0.003 (-0.08)	**0.032*** (4.31)**	-0.006 (-0.01)	0.014 (1.56)
	(4)	**all covariates**	0.007 (0.19)	-0.061 (-1.58)	0.007 (0.94)	-0.704 (-0.85)	0.011 (1.23)
ACETO	**(5)**	**all covariates**	0.039 (1.05)	-0.007 (-0.18)	0.013* (1.85)	-0.007 (-0.01)	0.009 (1.06)
Panel C. Combined Disclosure and Board Structure Indices							
FE estimates from Table 7			**0.194*** (3.54)**	0.059 (1.44)	**0.046*** (5.85)**	**0.054** (2.28)**	**0.047*** (5.27)**
HHH	**(1)**	***q***	**0.180*** (3.73)**	0.072 (1.63)	**0.044*** (5.60)**	**0.053*** (2.14)**	**0.048*** (4.69)**
	(2)	**governance index**	**0.191*** (3.96)**	0.071 (1.62)	**0.046*** (5.90)**	**0.053*** (2.14)**	**0.049*** (4.85)**
	(3)	**predictors of both (1) + (2)**	**0.167*** (3.47)**	0.047 (1.07)	**0.040*** (5.14)**	**0.053*** (2.14)**	**0.042*** (5.85)**
	(4)	**all covariates**	**0.143*** (2.98)**	0.010 (0.23)	**0.031*** (4.01)**	0.030 (1.27)	**0.040*** (3.97)**
ACETO	**(5)**	**all covariates**	**0.174*** (3.62)**	0.065 (1.52)	**0.034*** (4.40)**	0.017 (0.72)	**0.041*** (4.04)**

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Table 9. Aspects of Disclosure and Board Structure

Table shows coefficients for pooled OLS, RE, and FE regressions of *ln*(Tobin's *q*) on country indices and subindices, covariates, year dummies, and constant term. Indices are normalized (mean =0; σ=1). Covariates (listed in Table 5) and sample are the same as in Table 6. Observations are excluded as outliers if a studentized residual from regressing *ln*(Tobin's *q*) on country *CGI*, year-by-year > ±1.96. *t*-statistics, using firm clusters, are in parentheses. We also report *p*-values for joint significance (F test) for disclosure and board structure subindices together; Breusch-Pagan (χ^2) test, and correlated random effects (CRE) test for joint significance of differences between RE and FE coefficients for all indices. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. R^2 is overall R^2 for RE and within R^2 for FE regressions. Significant results (at 5% level or better) are in **boldface**.

Sample	**Brazil**		**India**		**Korea**		**Turkey**		**BIKT Pooled**		
Regression	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**weighted FE**
Index or subindex	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**
Financial disclosure	**0.125*** **	**0.144** **	0.029	0.045	**0.027*** **	**0.024*** **	**0.040** **	*0.031**	**0.034*** **	**0.029*** **	**0.029** **
	(3.57)	**(2.01)**	(0.75)	(0.94)	**(4.12)**	**(3.26)**	**(2.40)**	*(1.76)*	**(4.77)**	**(3.91)**	**(2.41)**
Non-financial disclosure	0.024	0.046	**0.072** **	0.075*	0.004	0.003	0.043*	0.042	0.007	0.008	0.021*
	(0.89)	(1.10)	**(2.04)**	(1.65)	(0.84)	(0.58)	(1.79)	(1.62)	(1.18)	(1.28)	(1.93)
Board independence	**0.103*** **	**0.093** **	0.030	0.013	**0.018*** **	**0.019*** **	0.013	*0.037**	**0.026*** **	**0.026*** **	**0.032*** **
	(4.28)	**(2.54)**	(1.20)	(0.41)	**(3.30)**	**(3.19)**	(0.79)	*(1.96)*	**(4.20)**	**(3.90)**	**(2.85)**
Board committees	0.010	-0.011	0.005	-0.011	**0.014** **	**0.017*** **	-0.016	-0.024	-0.001	0.001	-0.018
	(0.36)	(-0.22)	(0.21)	(-0.32)	**(2.26)**	**(2.69)**	(-0.96)	(-1.22)	(-0.19)	(0.07)	(-1.60)
Board procedure	-0.008	-0.007	-0.031	-0.035	0.007	0.006	0.000	-0.005	0.002	0.003	-0.005
	(-0.33)	(-0.21)	(-1.13)	(-0.81)	(1.27)	(0.91)	(0.03)	(-0.27)	(0.33)	(0.40)	(-0.53)
Shareholder rights	0.001	-0.018	0.006	0.020	0.001	0.001	0.008	0.001	0.008	0.003	0.004
	(0.02)	(-0.28)	(0.22)	(0.54)	(0.13)	(0.12)	(0.54)	(0.07)	(0.65)	(0.27)	(0.25)
Ownership structure	-0.014	**-0.102** **			*-0.012**	*-0.015**	0.013	**0.063** **	0.003	0.002	-0.002
	(-0.50)	**(-2.01)**			*(-1.71)*	*(-1.77)*	(0.63)	**(2.04)**	(0.39)	(0.19)	(-0.12)
Related party transactions	-0.014	-0.028	0.007	0.021					-0.017	0.009	0.008
	(-0.65)	(-1.15)	(0.25)	(0.70)					(-0.64)	(0.26)	(0.25)
Joint significance	0.0000	0.0020	0.0404	0.1625	0.0000	0.0000	0.0008	0.0060	0.0000	0.0000	0.0005
Hausman test	0.0000		0.0000		0.0000		0.0000		0.0000		
CRE test: all indices	0.423		0.578		0.022		0.271		0.522		
Random effects λ	0.387		0.304		0.622		0.717		0.757		
R^2	0.42	0.59	0.41	0.45	0.53	0.39	0.42	0.48	0.46	0.41	0.44
Number of Firms	165	83	400	198	646	644	195	193	1,406	1,118	1,118
Number of Observations	248	166	607	405	3,191	3,189	1,094	1,092	5,140	4,855	4,855

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Table 10. Governance Indices and Profitability

Table shows coefficients for firm fixed effects (FE) regressions of profitability (EBIT/Assets$_{t+1}$) on governance indices, covariates, year dummies, and constant term. Indices are normalized (mean =0; σ=1). Covariates (listed in Table 5) and sample are same as in Table 6, except we drop Net Income/assets and EBIT/Sales. Time-invariant dummy variables (industry, business group, US cross listing, MSCI) drop out with firm fixed effects. Covariates, year dummies, and constant term are interacted with country dummies in the pooled regressions. FE sample excludes firms observed only once. Observations are excluded as outliers if a studentized residual from regressing profitability on country *CGI*, year-by-year > ±1.96. *t*-statistics, using firm clusters, are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are in **boldface**.

Sample	**Brazil**	**India**	**Korea**	**Turkey**	**BIKT Pooled**	
Specification	**FE**	**FE**	**FE**	**FE**	**FE**	**Weighted - FE**
Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Disclosure	**0.044****	0.013	0.002	0.002	0.004	0.010
	(2.10)	(0.81)	(0.69)	(0.34)	(0.91)	(0.33)
Board Structure	-0.022	0.022	0.004	-0.005	0.004	0.003
	(-1.44)	(0.85)	(1.32)	(-1.05)	(1.47)	(0.95)
Board Procedure	0.010	-0.018	-0.001	*0.007**	-0.002	-0.002
	(1.08)	(-0.55)	(-0.52)	*(1.66)*	(-0.72)	(-0.89)
Shareholder Rights	**-0.055*****	0.020	0.012	**-0.007****	0.000	-0.005
	(-2.94)	(1.36)	(1.39)	**(-2.43)**	(0.10)	(-1.21)
Ownership Structure	-0.015		-0.004	0.005	-0.002	-0.000
	(-0.99)		(-1.30)	(0.90)	(-0.80)	(-0.03)
RPTs	-0.008	-0.008			-0.009	-0.009
	(-0.89)	(-0.80)			(-1.39)	(-1.49)
Firms	83	192	644	189	1,108	1,108
Observations	178	312	3,141	940	4,571	4,571
Within R^2	0.277	0.255	0.035	0.087	0.037	0.058
Combined D-BS Index	**0.034*****	0.025	0.004	0.018	0.007	0.012
	(3.47)	(0.93)	(1.53)	(1.29)	(0.53)	(0.59)
D-BS Index Complement	**-0.019****	-0.001	0.005	-0.005	-0.000	-0.004
	(-2.11)	(-0.09)	(1.41)	(-1.19)	(-0.17)	(-1.33)
Firms	83	192	644	189	1,108	1,108
Observations	178	312	3,141	940	4,571	4,571
Within-R^2	178	312	3,141	940	4,262	4,262

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Table 11. Governance Indices and Liquidity

Table shows coefficients for firm fixed effects (FE) regressions of ZERORET (the fraction of days in the fiscal year for which the stock price does not change, winsorized at 99%) on governance indices, covariates, year dummies, and constant term. Indices are normalized (mean =0; σ=1). Covariates (listed in Table 5) and sample are same as in Table 6 except they include the natural logarithm of Tobin's *q* and exclude share turnover Time-invariant dummy variables (industry, business group, US cross listing, MSCI) drop out with firm fixed effects. Covariates, year dummies, and constant term are interacted with country dummies in the pooled regressions. FE sample excludes firms observed only once. *t*-statistics, using firm clusters, are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are in **boldface**.

Sample	**Brazil**	**India**	**Korea**	**Turkey**	**BIKT Pooled**	
Specification	**FE**	**FE**	**FE**	**FE**	**FE**	**Weighted FE**
Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Disclosure	-0.009	0.014*	-0.003*	0.001	-0.001	0.000
	(-0.22)	(1.97)	(-1.93)	(0.24)	(-0.80)	(0.14)
Board Structure	-0.013	-0.004	-0.003*	-0.007	**-0.004*** **	**-0.006** **
	(-0.59)	(-0.99)	(-1.80)	(-1.39)	**(-2.78)**	**(-2.48)**
Board Procedure	-0.032	-0.001	-0.001	-0.003	-0.001	-0.001
	(-1.28)	(-0.47)	(-0.46)	(-0.77)	(-0.52)	(-0.63)
Shareholder Rights	-0.028	-0.002	0.002	**0.008** **	**0.006** **	**0.006** **
	(-0.94)	(-0.77)	(0.84)	**(2.31)**	**(2.31)**	**(2.27)**
Ownership Structure	0.024		0.003	-0.000	-0.001	-0.001
	(0.79)		(1.08)	(-0.07)	(-0.75)	(-0.43)
RPTs	**0.043** **	-0.006			-0.000	-0.000
	(2.05)	(-1.17)			(-0.06)	(-0.10)
Observations	113	242	2,500	897	3,752	3,752
Firms	60	169	493	156	817	817
Within-R^2	0.486	0.740	0.226	0.401	0.337	0.387
Combined D-BS Index	-0.016	0.002	**-0.005*** **	-0.007	**-0.005*** **	**-0.005** **
	(-0.65)	(0.63)	**(-2.92)**	(-1.46)	**(-3.07)**	**(-2.35)**
D-BS Index Complement	0.018	-0.002	0.001	0.006	0.002	0.004
	(0.81)	(-0.45)	(0.77)	(1.27)	(1.06)	(1.26)
Observations	113	242	2,500	897	3,752	3,752
Firms	60	169	493	156	817	817
Within-R^2	0.436	0.741	0.225	0.395	0.337	0.381

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