Which Aspects of Corporate Governance Matter in Emerging Markets: Evidence from Brazil, India, Korea, and Turkey

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Which Aspects of Corporate Governance Matter? Evidence from Emerging Markets*

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Abstract. There is evidence that some "corporate governance indices" predict higher firm values in emerging markets, but little evidence on which specific 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. We find that disclosure (especially financial disclosure) predicts higher market value across all four countries. Board structure (principally board independence) takes a positive coefficient in all countries and is significant in Brazil and Korea. The Disclosure Index, and a combined Disclosure-Board Structure Index, remain significant in lower bounds analyses. The other indices do not predict firm value. Unlike our country-specific indices, the best available multicountry index, from Thomson Reuters (successor to Asset4) does not cover disclosure and does not predict firm value. These results provide evidence that: (i) country-specific indices can outperform broad, one-size-fits-all indices, and (ii) firms, in responding to investor pressure for better governance; and investors, in assessing 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 codes: G18, G30, G34, G39, K22, K29

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1 – Introduction

A large body of research provides evidence that firm-level "corporate governance" matters in various ways, for firm value and performance. However, which aspects of firm-level governance affect value and performance remains an open question. Take for instance the debate around the Gompers, Ishii and Metrick (2003) "G" index. The authors study the U.S., build a "governance index" (better understood as an index of takeover defenses) with 24 equally weighted elements and provide evidence that this construct predicts firm market value and performance. Some elements are chosen by firms; others by the states where they incorporate. Bebchuk, Cohen, and Ferrell (2009) criticize this index and argue that only six firm-chosen elements (their "E" index) predict firm value, the remainder are noise. However, Straska and Waller (2014) report evidence that the 18 other measures, treated as an "O" (for other) index, predict takeover likelihood. Karpoff, Schonlau and Wehrly (2017) build a "D" index from a different subset of the G-index elements, and report that their index also predicts takeover likelihood.

The G index measures takeover defenses, rather than overall corporate governance. The challenges in understanding which aspects of governance matter increase substantially if one considers other aspects of governance – such as disclosure and board structure, or if one moved from the U.S. to countries where most firms have controlling shareholders, or moved from developed to emerging markets. Moreover, a core challenge in assessing the impact of particular aspects of corporate governance is the need to control for other aspects of corporate governance. Otherwise, an apparent correlation between, say, disclosure and firm value could reflect omitted variable bias, due to failure to control for other aspects of governance. The G index debate ignores this issue – all debaters study the same narrow set of 24 elements.

The need to control for a broad set of governance aspects poses important obstacles. In some countries it is difficult to measure the effects of major aspects such as board independence, disclosure, or ownership structure due to limited data or little variation, either in the cross-section across firms, or over time for a given firm.

The available multi-country indices apply a US-centric view of what constitutes good governance, apply the same governance elements across many countries, and usually cover only

the largest firms in each country.[1] Yet what matters in corporate governance may differ across countries. These indices may poorly fit for any one country (or all countries, for that matter).

Firm-level corporate governance may be especially important in emerging markets because of the extra risks they pose for investors (detailed in Karolyi, 2015). For emerging markets, prior research finds evidence that *country-specific*, overall governance indices can predict firm-level market value, proxied by Tobin's *q*.[2] However, little is known about which aspects of firm-level governance predict Tobin's *q*. Studies of particular aspects of governance – such as board independence (e.g., Dahya, Dimitrov, and McConnell, 2008) or disclosure (Durnev and Kim, 2005) generally do not control for other aspects. Furthermore, many studies use only cross-sectional data or, if they have panel data, lack sufficient within-firm variation to use firm fixed effects (FE).[3] We know of only two studies, both using only cross-sectional data, which examine specific aspects of governance, controlling for other aspects (Chen, Chen, and Wei, 2009; Black, de Carvalho and Gorga, 2012).[4] For disclosure, the review by Leuz and Wysocki (2016), notes that prior research on emerging markets is limited.

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[1] Among the currently available multicountry indices, ISS covers only developed markets. Reuters ASSET4 covers both developed and emerging markets, but only the largest firms in each country. It covers 74 firms in Brazil; 78 in India; 98 in Korea, and 22 in Turkey, generally starting in 2009. Bloomberg focuses on social and environmental issues, and has very thin coverage of emerging markets (around 80 firms across yy countries).

[2] Our discussion of prior work focuses on studies which focus on, or include, emerging markets. Black et al. (2014) study Brazil, India, Korea, Russia, and Turkey, using country-specific indices. Single-country studies in emerging markets include Brazil (Braga-Alves and Shastri, 2011; Black, de Carvalho and Gorga, 2012; Black, de Carvalho, and Sampaio, 2014; Leal and Carvalhal da Silva, 2007); Hong Kong (Cheung et al., 2007, 2011; Lei and Song, 2012); India (Balasubramanian, Black and Khanna, 2010; Sarkar, Sarkar and Sen, 2012); Korea (Black, Jang and Kim, 2006a, Black and Kim, 2012); Russia (Black, Love and Rachinsky, 2006; Black, 2001; Kuznecovs and Pal, 2012); and Thailand (Limpaphayom and Connelly, 2004; Kouwenberg, 2006). Multicountry studies using broad governance indices, which are not country-specific, include Durnev and Kim (2005); Klapper and Love (2004); and Doidge, Karolyi and Stulz (2007). We focus in this paper, and thus in our review, on *firm*-level governance, and on studies of emerging markets. There are separate literatures on developed markets, and on the effect of *country*-level governance.

[3] Dahya, Dimitrov, and McConnell (2007) find that board independence predicts higher Tobin's *q,* but do not have panel data and do not control for other aspects of governance. Durnev and Kim (2005) find that disclosure predicts higher Tobin's *q*, but again with cross-sectional data and without controlling for other aspects of governance. Black, Love and Rachinsky (2006) find evidence that disclosure predicts higher Tobin's *q*, and have panel data with firm fixed effects, but do not control for other aspects of governance.

[4] Chen, Chen and Wei assess whether the seven component "indices," which comprise the Credit Lyonnais Securities Asia (CLSA) governance index, predict cost of equity capital if included together in a single regression. None of the indices are significant. Black, de Carvalho and Gorga study Brazil, India, and Korea using indices similar to those we use here.

Also unknown is how country-specific indices perform compared to multicountry indices which use the same elements in all countries. The only available studies of multi-country indices in emerging markets use older indices, cross-sectional data and limited covariates. Black et al. (2014) argue that the apparent strength of multicountry indices in these studies would likely disappear with a stronger empirical specification, but do not directly test that claim.

We address both issues here. Emerging markets potentially offer a good setting to study what matters in corporate governance. One can often find significant variation in corporate governance practices both across firms and within firm over time. In this article we exploit that variation. We first study what aspects of corporate governance matter in four major emerging markets: Brazil, India, Korea, and Turkey, using our preferred approach of building country-specific indices. 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 emerging markets.

A major challenge in measuring corporate governance in emerging markets is lack of data, especially time-series data. We address this problem by building country-specific, overall governance indices ("country indices"), largely by hand, comprised of indices for board structure, disclosure, ownership, shareholder rights, board procedure, and control of related party transactions (RPTs).[5] These governance indices differ substantially across our four countries, based on data availability and because each of them reflects local rules and institutions. They also differ substantially from the indices that would be appropriate in developed markets. The principal alternative is a "common index," composed of the same elements across countries. As we show below, the best available common indices lack predictive power. Thus, we believe that our country-specific indices are a large improvement over the common-index approach.

Our research design involves using panel data set on country-specific indices for our four countries, with firm FE and extensive covariates. We also present results with firm random effects (RE). We examine specific aspects of governance, controlling for other aspects. In a multi-country setting, firm FE with extensive covariates (to limit omitted variable bias) is likely the best research design that is realistically available. In a single country setting, researchers can sometimes exploit

[5] Ownership Structure Index is not available in India and RPTs Index is not available in Korea and Turkey.

"natural experiments" – usually legal changes in a particular country's corporate governance rules. However, most shock-based studies rely on a single shock, in a single country, to a particular aspect of governance. This makes it hard to generalize to other countries or other aspects of governance.

Our panel data design is not a true causal design, and is vulnerable to omitted variable bias (OVB) and reverse causation. We address those concerns, as best one can without an exogenous shock, by using extensive covariates and by computing lower bounds on our estimates – the values we would obtain if omitted variables exist with specified strength to predict both governance and our outcome (Tobin's *q*). We compute these bounds using two separate approaches, proposed respectively by Hosman, Hansen and Holland (2010), and Altonji, Elder and Taber (2005) extended by Oster (2015).

We report four main results. First, improved disclosure predicts higher market value in each country and in the sample in which these four countries are pooled (the pooled sample). The value of disclosure is consistent across countries, in both firm random effects (RE) and firm fixed effects (FE) specifications. This result is robust with respect to most assumptions that we make about omitted variable bias. Within "disclosure," financial disclosure is a stronger predictor of firm value than non-financial disclosure.

Second, board structure has predictive value in Brazil, Korea and the pooled sample, which is consistent across empirical specifications. However, board structure does not have predictive value in India and Turkey. Only in Korea, the results for board structure are robust with respect to most assumptions that we make about omitted variable bias. Within "board structure," board independence predicts market value (in Brazil, Korea, and Turkey), but there is weaker evidence that board committees, such as an audit committee, predict value. One core goal of board governance is to address agency conflicts between minority shareholders and insiders (e.g., Adams, Hermalin and Weisbach, 2010). Our results suggest that board independence likely has a greater role than committee structure in addressing those conflicts.

Third, once we control for disclosure and board structure, we find no evidence, that the other indices (for board procedure, shareholder rights, ownership structure, and RPTs) predict firm value, either individually or together. These three results above 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.

The predictive power of disclosure for Tobin's *q* is consistent with prior theoretical work. Improved disclosure should reduce information asymmetry (e.g., Diamong and Verrecchia, 1991). This can increase share prices through at least two channels. First, better disclosure might give investors more confidence that insiders are not appropriating firm value in unseen ways. Second, better disclosure could improve liquidity, which should in turn increase share prices – a channel proposed by Amihud and Mendelson (1988).

Fourth, we also assess the performance of the two best available common indices which cover a significant number of emerging market firms, the Asset4 Index and the Thomson Reuters index ("TR Index"). The usable sample for the Asset4 Index includes 585 firms from 15 emerging markets over 2002-2016; the usable TR Index sample covers 687 firms from 20 emerging markets, including Brazil, India, Korea, and Turkey, over 2008-2016.[6] In firm FE regressions, neither index has any power to predict Tobin's *q*. Also, neither contains disclosure elements. Yet, we find above that disclosure index is the only index with consistent predictive power across our four countries. We thus provide evidence that supports using country-specific indices in emerging markets, and casts doubt on the usefulness for these markets of a common index, at least an index without a strong emphasis on disclosure.

Our strategy of building country-specific indices has important limitations. First, it cannot easily be extended to include additional countries; each additional country requires substantial additional work.[7] Second, due to both limited number of countries, and our indices that differ across countries, we cannot readily explore the relative importance of country versus firm characteristics in explaining corporate governance (cf. Doidge, Karolyi and Stulz, 2007).

This paper proceeds as follows. Section 2 presents our governance surveys, samples, and governance indices. Section 3 develops our methodology. Section 4 presents our results on which

[6] The principal other commercial indices are from ISS and Bloomberg. ISS only covers developed markets (see Aggarwal et al., 2010). Bloomberg covers a small number of emerging markets firms -- roughly the first decile of the 800 companies in the S&P Global Broad Market Index: http://www.robecosam.com/en/sustainability-insights). The indices used in prior studies, from CLSA and Standard and Poor's, are available only for specific years (2001 for CLSA; 2002 for Standard & Poor's).

[7] In prior work (Black et al. 2014), we were able to include Russia as a fifth country; we cannot include Russia here because we rely on Russian indices built by others, and lack subindices with good overlap with our own subindices.

aspects of governance predict firm value. Section 5 presents our results on the Asset4 and TR indices. Section 6 concludes.

2 – Governance Indices, Surveys and Samples and Indices

2.1 – The Choice Between Common and Country-Specific Indices

We are interested in the causal question: Will a within-country *change* in governance change Tobin's *q*, or another outcome variable? The elements of a governance index which are useful for addressing this question will vary substantially across countries for a number of reasons. First, only elements with meaningful within-country variation across firms and time are useful in assessing causation. Conversely, elements that are mandatory or followed by either very few firms or almost all firms in a country are not useful for this purpose. Second, the elements on which data is available will vary across countries. Third, firms' governance choices are influenced by country-specific rules, norms, and institutions. All of these factors call for use of country-specific indices. Conversely, a "common" index, which contains the same elements for each country, will likely miss much of what is important about governance in each country (Black et al., 2014). We confirm below that our country-specific indices have power to predict firm value , while the TR and Asset4 common indices do not.

We therefore build country-specific indices. We include an element in a country index if: (i) it is often believed to correspond to good governance (sometimes with empirical support, but often not, because for many potential elements, little is known about whether they affect firm value or performance, either alone or in combination with other elements); (ii) it is relevant to governance in this country, in the judgment of the "local" coauthor from each country; (iii) we have reasonably complete data across firms; (iv) there is reasonable variation across the firms in our sample (thus, we generally exclude elements that are legally required); and (v) the element is not too similar to another element.

Take as an example our board independence subindex for Brazil. There are no rules requiring 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) audit committee or fiscal board includes a minority shareholder representative.

Next consider India. Legal rules require firms to have either (i) one-third independent directors and separation of the CEO and board chair roles; or (ii) at least 50% independent directors. Given these rules, and the observed behavior of Indian firms, we include five elements in India board independence subindex: (i) firm has at least 50% independent directors; (ii) firm has a strict majority of independent directors; (iii) firm has at least 50% independent directors *and* separation of the CEO and board chair roles; (iv) firm complies with the legal rule stated above;[8] and (v) audit committee has 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 each of the countries in how we choose to measure board independence.[9]

2.2 – Country-Specific Indices

We provide here summary information on how we construct indices in each country. For additional details on how we develop governance indices, see Black et al. (2015).[10] Table 1 lists the governance indices and their elements for each country. For each element, it indicates in which countries the element is used (elements in boldface), which elements are available (or potentially available without great difficulty), but not used, because they are too similar to another element or too rare or common for there to be meaningful differences across firms. We also indicate whether an element is non-public (NP), non-public and not collected in our private surveys (NA), or not meaningful (NM), because it is mandatory, not allowed, too rare or too common.

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[8] In our other 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 meet the board independence rules.

[9] Further details on how we build governance indices in each country are available from our single country studies. For Brazil, see Black, de Carvalho and Gorga (2012). For India, see Balasubramanian, Black and Khanna (2010). For Korea, see Black, Jang and Kim (2006). For Turkey, see Ararat, Black and Yurtoglu (2017).

[10] The Brazil, India, and Korea surveys are available on request. In Black et al. (2014), we also study Russia; we are unable to do so here because of lack of data: we cannot construct indices below the aggregate country CGI level.

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); overall, 42 elements. We cannot construct a meaningful ownership index because India has a one share, one vote rule, and few pyramids.[11] We use similar elements in Brazil and India to the extent feasible. Nonetheless, the Brazil and India indices have only 12 common elements.

Korea. 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 Shareholder Rights Index contains one element related to RPTs. We again use similar elements to the other countries, where feasible. Nonetheless, the Brazil and Korea indices have only 6 common elements.

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 RPT. 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.[12] 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

[11] 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 pyramids; they report that only 6% of firms have pyramidal ownership. Bertrand et al. (2002) examine tunneling within business groups in India, but do not examine where expropriation tends to occur within a pyramid, nor how ownership-control separation within a group affects firm performance. We control for the potential effect of business group membership on firm value by using a dummy variable for business group membership as a control variable.

[12] Brazil RPT Subindex is an exception. See discussion below.

Corporate Governance Index (e.g., *Brazil CGI* or *BCGI*) as the equally weighted average of the specific indices.[13]

2.3 – 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 at 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*: we rely on nonpublic data from yearly surveys conducted by ourselves (1998-2000) and 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.[14]

We exclude state-controlled firms, subsidiaries of foreign companies and banks. In Brazil the respondents represent 72% of the market cap of eligible firms. The sample consist of 236 firm-year observations, but only 72 firms answered two or more surveys. India poses similar concerns with sample selection bias and an unbalanced panel.[15] In contrast, we have nearly complete coverage of public firms in Korea and Turkey.[16] Table 2 provides summary information on the sample in each country.

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

[13] Black et al. (2014) show that, for our four sample countries, Brazil, India, Korea, and Turkey (below, "BIKT"), overall country-specific governance indices ("country CGI") predict Tobin's *q* in RE and FE panel regressions. In contrast, a "common index," which uses the same elements in all four countries, has no predictive value.

[14] In Turkey, in a handful of cases, where an element is missing in year *t* for a particular firm, but equals 1 for that firm in both the previous year and the next year, we assume it equals 1 in the year where it is missing, and similarly for an element that is missing in year *t* but equals 0 in the previous year and the next year.

[15] 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.

[16] For details on Brazilian surveys, see Black, de Carvalho and Gorga (2010) and Black, de Carvalho, and Sampaio (2014); for India, see Balasubramanian, Black and Khanna (2010); for Korea Black and Kim (2012), and for Turkey, Ararat, Black and Yurtoglu (2017).

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 infeasible to obtain statistically significant results for one index, controlling for the other indices.

2.4 – TR Index and Asset4 Index

The Asset4 Index was originally provided by Asset 4, a Swiss company that specialized in providing environmental, social and governance information. Asset 4 was acquired by Thomson Reuters in 2009. Thomson Reuters has continued to publish the Asset4 Index, but also uses Asset 4 data as the primary source for its own TR Index. Asset 4 relies on publicly available data sources to collect a large number of "key performance indicators", which are used to construct five subindices that comprise the Asset4 Index. The five subindices are (i) Board Structure, (ii) Compensation Policy, (iii) Board Functions, (iv) Shareholder Rights, and (v) Vision and Strategy.[17] Since the Vision and Strategy subindex is both subjective and not related to governance in any direct way , we also compute a "Modified Asset4 Index" as the average of the four remaining subindices. We provide a list of the Asset4 governance elements in Appendix Table A.1. The

[17] In Asset 4's own description, the subindices measure "a company's management commitment and effectiveness towards following best practice corporate governance principles related to the following aspects. Board Structure: a well-balanced membership of the board that reflect a company's capacity to ensure a critical exchange of ideas and an independent decision-making process through an experienced, diverse and independent board. Compensation Policy: to competitive and proportionate management compensation that reflect a company's capacity to attract and retain executives and board members with the necessary skills by linking their compensation to individual or company-wide financial or extra- financial targets. Board Functions: board activities and functions that reflect a company's capacity to have an effective board by setting up the essential board committees with allocated tasks and responsibilities. Shareholder Rights: a shareholder policy and equal treatment of shareholders that reflect a company's capacity to be attractive to minority shareholders by ensuring them equal rights and privileges and by limiting the use of anti-takeover devices. Vision and Strategy: the creation of an overarching vision and strategy integrating financial and extra-financial aspects. It reflects a company's capacity to convincingly show and communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

Asset4 Index contains governance information on approximately 4300 firms over 2002-2016 from both developed and emerging markets, but covers only the largest firms in each country. Coverage is limited to only 1000 firms in the earlier years. If restricted to emerging markets, the Asset4 Index is available from 2002 to 2016 for 959 firms from 21 emerging markets, but includes only a limited number of observations of each firm. After dropping countries with a single firm or with limited data on covariates, and firms with a single observation (which will be absorbed by the firm FEs in our regressions), we have an effective sample of 3,125 observations of 585 firms from 15 emerging markets.

The Asset4 Index is primarily, but not entirely, a "common index." A number of elements are coded 0-1, where firms receive a "1" value if their score on the underlying question exceeds the country mean, or median.

The TR Index is provided by Thomson Reuters. It focuses on two aspects of governance that are labelled as "Management" and Shareholders". The Management subindex is based on 34 elements that aim to measure "a company's commitment and effectiveness towards following best practice corporate governance principles". The Shareholders subindex uses 12 elements that aim to measure "a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices." All elements are coded 0/1.

The TR Index includes 687 firms from 20 emerging markets and is available from 2008 to 2016. The TR Index elements are listed in Appendix Table A.2. Our effective sample size, after dropping firms observed only once, is 3,564 observations of 652 firms in 15 emerging markets. Both the TR Index and the Asset4 Index run from 0 to 100. In regressions, we normalize these indices, and their subindices,so that the coefficients are comparable to those we report for the country-specific indices.

A close look at this index raises many questions about its suitability as a governance index. First, Thomson Reuters does not explain how it combines elements into an overall index score, nor how it computes individual elements, and this is sometimes not obvious. For example, one 0/1 element is decribed as "litigation expenses reported by the company." Some elements clearly measure performance, rather than governance, for example, one element of Shareholders subindex asks whether the firm has issued a profit warning in the last year. Some are subjective, such as "Is the company under the spotlight of the media because of a controversy linked to

aggressive or non-transparent accounting issues?" Several involve counting news media articles on particular topics; these will correlate strongly with firm size.

2.5 – Covariates

Many firm characteristics are potentially associated with both Tobin's *q* and governance; if so, omitting them could lead to OVB. We therefore include extensive covariates to reduce this bias. In Black et al. (2014), we report evidence that results from studies with "thin" covariates can be spurious; the predicted effect of governance on Tobin's *q* generally shrinks in magnitude if one adds additional covariates. Table 5 defines our principal covariates and indicates which is available in each country.[18] We report summary statistics in Appendix Table A.3.

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 what type of 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. *Ownership*: fractional ownership by the largest shareholder, by foreign investors, and the state, since ownership can affect firm value. *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.[19]

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[18] For India, we vary the definitios of a few covariates, to address limitations of the Prowess database, which is our source for financial data for Indian firms. We generally define leverage as total liabilities/(total liabilities + book value of assets), but use total debt instead of total liabilities in India because in the Prowess database, total liabilities = total assets, for some reason. A small number of firm-years have zero or negative sales; we drop these firm-year observations. We use ln(years since incorporation) instead of *ln*(years listed +1), because listing year is not available. For 2012, we use the most recent available data (for fiscal 2010, ending March 31, 2011) to measure covariates.

[19] We also include several variables which drop out with firm fixed effects, but are relevant for pooled OLS and RE. *Industry dummies*, defined separately in each country (9 dummies for Brazil, 11 for India, 4-digit Korean SIC codes

3 – Methodology

3.1 –Estimations

Our 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* 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:

$$\ln(q_{i,t}) = \beta_0 + \boldsymbol{\beta}_1 \times \mathbf{CGI}_{i,t} + \boldsymbol{\beta}_2 \times \mathbf{x}_{i,t} + g_t + f_i + \varepsilon_{i,t} \qquad (1)$$

Here $\mathbf{CGI}_{i,t}$ is a vector of our governance indices; $\mathbf{x}_{i,t}$ 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).

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 help 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 pooled results should be interpreted with caution.

We modify the regression specification in 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 MSCI dummy). We convert country-specific industry dummies to 2-digit US-equivalent SIC codes. We interact covariates, year dummies, and the constant term with country dummies. This lets their impact vary across countries and provides, in effect, a separate "response surface" for each country. For pooled results one would be concerned that the overall results could be driven by a particular country with a large sample. To account for that possibility, we also run an FE specification weighting the sample so that each country would have the same weight. We do this by using 1/(number of firms) as weights. Weighting is not feasible

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. *Business group dummy,* because group firms may behave differently than stand-alone firms.

for RE. Letting c index countries, d_c be country dummies, and suppressing the FE weights, the FE specification is:

$$\ln(q_{c,i,t}) = \beta_0 \times d_c + \boldsymbol{\beta}_1 \times \textbf{Pooled CGI}_{c,i,t} + \boldsymbol{\beta}_2 \times \mathbf{x}_{c,i,t} \times d_c + f_i + (g_t \times d_c) + \varepsilon_{c,i,t} \quad (2)$$

3.2 – Sensitivity Tests for Potential Omitted Variable Bias

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 important concerns.[20] Consider first reverse causation, with firm value predicting governance. In separate work for India, Korea, and Turkey (we have not studied Brazil),[21] we find that non-time varying firm characteristics (e.g., firm, industry, business group) strongly predict governance, but time-varying firm characteristics only weakly predict governance. Therefore panel data specifications with FE or, less strongly, RE should greatly reduce concerns with reverse causation. We also limit the potential for reverse causation by measuring governance in the first part of a year and Tobin's *q* at year-end.

The more important endogeneity concern is likely to be omitted time-varying variables, which are associated with both governance and Tobin's *q*. Here, FE or RE with a broad governance index and extensive covariates can reduce but not eliminate the potential for omitted variable bias.

3.2.1 – HHH Sensitivity Bounds

We therefore assess how sensitive our results are likely to be to omitted variables, by adapting to panel data two related approaches, one from statistics (Hosman, Hansen, and Holland, 2010; below HHH) and one from economics (Altonji, Elder, and Taber, 2005; Altonji et al., 2011; Oster, 2015; below, ACETO). Both approaches use the influence of known covariates on the

[20] 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 governance, Tobin's *q*, or both. We find the instruments unconvincing, and do not pursue this approach here. On concerns with instrumental variables in finance and accounting, see Larcker and Rusticus (2010); Roberts and Whited (2013), Atanasov and Black (2016).

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

coefficient of interest to provide bounds on that coefficient, if there are similarly influential but omitted covariates. This approach is credible only if one begins with a rich set of included covariates.

Consider FE (Equation 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 here as *q* for ease of presentation (although we use *ln*(*q*) in our regressions), on *CGI* which includes (excludes) an unobserved variable *u*. A standard econometric result is:

$$|\beta_{short} - \beta_{long}| = |\rho(q,u)_{\mathbf{x},CGI} * \rho(CGI,u)_{\mathbf{x}}| \quad (3)$$

Here $\rho(a,u)_{\mathbf{b}}$ is the partial correlation between a and u, conditioned on a vector of covariates **b.**[22] 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 (3) can be rewritten as:

$$|\beta_{short} - \beta_{long}| = |\rho(q,u)_{\mathbf{x},CGI} * [\text{s.e.}(\beta_{short}) * t_u]| \quad (4)$$

Here s.e.(x) is the standard error of x and t_u is the *t*-statistic on u from the long regression. Following HHH, Eqn. (4) can be generalized to allow multiple omitted variables **u.** Let R^2_{short} (R^2_{long}) be the R^2 value from a short (long) regression that omits (includes) **u**, **u** be of rank k, df_{short} be the degrees of freedom for the short regression, and $F_{\mathbf{u}}$ be the F-statistic for the joint significance of the elements of **u** from the long regression. Define $t_{\mathbf{u}}$ as the positive square root of $F_{\mathbf{u}}$ with a degrees of freedom correction $t_{\mathbf{u}} = \{F_{\mathbf{u}} * [(k * df_{short})/(df_{short} + 1 - k)]\}^{1/2}$ and define $\rho^2(a,\mathbf{u})_{\mathbf{b}}$ as the fractional decrease in unexplained variance from adding **u** to the regression

$$\rho^2(a,\mathbf{u})_{\mathbf{b}} = \frac{(1 - R^2_{\text{short}}) - (1 - R^2_{\text{long}})}{(1 - R^2_{\text{short}})} \quad (5)$$

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

Then equation (4) remains valid for vector **u**. HHH present results for cross-sectional OLS, but their results carry through immediately to FE, because firm-demeaning, as in eqn. (1), is equivalent to adding firm dummies in OLS.

Omitted variable bias arises only to the extent that 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 *CGI* on all covariates, and then to make assumptions about plausible values of $\rho(q,\mathbf{u})_{\mathbf{x},\text{CGI}}$. HHH suggest values from .01-.10. An alternate approach, followed here, is to assume that $\rho(q,\mathbf{u})_{\mathbf{x},\text{CGI}}$ = largest value of $\rho(q,x_2)_{(\text{rest of }\mathbf{x}),\text{CGI}}$ for any included covariate x_2 (which may be the same as or different than x_1). For multiple omitted variables **u**, one imagines that the omitted vector of variables **u** predicts *CGI* as strongly (same *F*-statistic) as the strongest one or more of the included covariates **x.** The HHH approach relies on ordinary (not robust or clustered) standard errors.

This process lets one begin with the observed regression coefficient β_{short}, and construct a lower bound β_{lower} by subtracting the absolute value of $(\beta_{\text{short}} - \beta_{\text{long}})$, using eqn. (4), estimated using one or more included covariates that strongly predict both CGI and q. It corresponds to the intuition that if coefficient estimates do not change much as one adds more covariates to a regression, it is less likely that the estimates would change greatly if one could include additional omitted variables as well.

3.2.2 – ACETO Sensitivity Bounds

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; and (ii) would reduce the β estimate.[23] This produces a lower bound on the true FE coefficient:

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

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

The ACETO lower bound is similar in concept to an HHH lower bound in which one assumes that the omitted variables have the same power as all included variables.

4 – Results for Specific Indices

4.1 – Predictive Power of Disclosure and Board Structure Indices

4.1.1. RE and FE Regression Results

Table 6 investigates the power of each index to predict Tobin's *q*. We suppress results for covariates, but present them in Appendix Table A.4. For each country, we present firm RE and firm FE specifications.[24] We include all indices in a single regression; thus, the coefficient on each index indicates the contribution of the part of each index that is orthogonal to the other indices. We test for equivalence of FE and RE coefficients, using both the well-known Hausman test and the less-known but more flexible correlated random effects (CRE) model.[25] We test for the equivalence of the two models for the coefficients on all indices taken together. The CRE test rejects equivalence of the coefficients on the indices only in Turkey and only mildly ($p = 0.07$), but not for the other countries or the pooled sample. This suggests that RE is likely to be a reasonable specification, perhaps except in Turkey. The Hausman test applies to all variables together (governance indices and covariates); it rejects equivalence of RE and FE in all countries. We place principal reliance on the FE results.

Our first principal result is the importance of Disclosure Index in predicting Tobin's *q*. Disclosure Index is significant at the 5% level or better in all samples and specifications. At the same time there is substantial variation in coefficients across countries. Consider the FE results. Because the indices are normalized, the coefficients indicate the effect of a one standard deviation increase in each index. In Korea, a one-standard deviation increase in disclosure predicts a 0.023

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

[25] See Wooldridge (2013), § 14.3. The CRE model adds time-demeaned variables $\bar{\mathbf{x}}$ and $\overline{CGI}$ to the random effects model in eqn. (3). The coefficient and standard error on $\overline{CGI}$ provides a test of whether RE and FE coefficients on *CGI* are different; an F-test for the coefficients on all indices measures whether RE and FE produce different results for the indices taken together. The CRE test has several advantages over the better-known Hausman test: (i) one can use clustered standard errors; (ii) one can test for different FE and RE coefficients for specific variables, not only (as in the Hausman test) for all coefficients together; (iii) in practice, the Hausman test often fails to run (for us, it fails in India). Both tests assume exogenous **x**'s.

(2.3%) increase in Tobin's *q*. The predicted effect is much larger in other countries, ranging from 0.070 in Turkey to 0.194 in Brazil, and is 0.040 in the pooled sample.

Our second principal result is that Board Structure Index has predictive value. Board Structure 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 largely reflect the lower power of FE, plus loss of sample size – the Brazil sample is 159 firms with RE but only 81 with FE. Board structure is not significant in India or Turkey. The weaker results for India could reflect high legal minimums for board structure – Indian firms must have either 50% outside directors or else one-third outside directors and a chair who is not also the CEO. Perhaps, variation above these minimum levels does not strongly affect firm value.

The other indices have no consistent predictive value. With RE or FE, none of the coefficients on these indices are significant, and the signs on the coefficients are mixed.[26] The results in Table 6 have implications for the value of standard multi-country governance indices, including those developed by Institutional Shareholder Services and Governance Metrics International. These indices were designed principally for developed markets. They use common indices which rely heavily on measures of board procedure and relatively little on measures of disclosure. In contrast, we find that: (i) there is limited value in a common index (Black et al., 2014); and (ii) even using country-specific indices, a Board Procedure Index is insignificant, with mixed signs, across our countries. In contrast, Disclosure Index is consistently important across our four countries. These results, taken together, suggest that these indices – whatever value they may have in developed markets – are unlikely to capture very much of what matters for governance in emerging markets.

4.1.2. Results for Individual Elements

In Table 7, we assess whether the power of Disclosure Index to predict Tobin's *q* comes from specific individual elements or from the combined power of a number of different elements.

[26] Ownership structure takes a negative and marginally significant coefficient for Brazil with FE, but a much smaller, statistically insignificant coefficient with RE. Shareholder Rights Index has a significant positive coefficient in Turkey with pooled OLS, but a much smaller and insignificant coefficient with RE or FE.

Each row reports coefficients from separate country-specific regressions with firm FE. For each, the predictor variables are (i) a particular disclosure element; (ii) the rest of Disclosure Index; and (iii) the other governance indices.[27] Table 7 present results for Disclosure subindex; Appendix Table A.5 presents results for the other indices. There is no evidence that individual elements have power, once we control for the remaining elements of Disclosure Index (and the remaining indices). Across all four countries, we have 50 disclosure elements; of these 3 take significant positive coefficients and 1 takes a significant negative coefficient. These results could arise by chance.[28] Compare Black, Jang and Kim (2006), who find predictive power for Korean governance as a whole, but limited evidence for individual elements.

On the other hand, across all four countries, 37 of the 50 coefficients are positive, versus 13 negative. This result is highly significant in a simple sign test (p = 0.0009). The overall tendency for disclosure elements to take positive coefficients in predictin Tobin's q is consistent with investors valuing overall disclosure, rather than specific disclosure items.

For Board Structure Index (see Appendix Table A.5), we again find limited power for individual elements, except for Korea. In Korea, element k_bs_4 (firm has *at least* 50% independent directors) takes a strong positive coefficient (0.040; t = 2.85), and related element k_bs_5 (firm has *more than* 50% independent directors takes a positive and marginally significant coefficient (0.038; t = 1.84). Both elements, if included in a single regression, controlling for the other board structure elements and the other indices, are jointly powerful (F = 6.42; p = 0.002).

4.1.3. Lower Bounds on Results for Disclosure and Board Structure

Table 8 reports lower bounds for the FE coefficients on Disclosure and Board Structure indices. Panel A reports lower bounds for Disclosure Index, and Panel B reports lower bounds for Board Structure. Consider first Panel A. Rows (1)-(4) report different lower bounds using the HHH approach, and various assumptions about how omitted covariates might correlate with both Tobin's q and Disclosure Index. Row (5) reports the ACETO lower bounds. The lower bounds

[27] We present expanded results for all elements of all indices, in Appendix Table App-5.

[28] Of the three positive and significant elements, two have t-statistics only slight about 2.00. The third, Korea element k-dis_2 (does firm meet regularly with analysts), is statistically stronger (coefficient = 0.052; t = 3.12). However, Korea Disclosure Index is thin, with only three elements, and we consider it likely that some of the power of this element arises because it correlates with other, omitted disclosure elements for which we lack data.

in row (1) assume that there is 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*. OVB will be large only if this variable also strongly predicts Disclosure Index. In row (2), 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. OVB will be large only if this variable also strongly predicts Tobin's *q*. In row (3), we apply a more stringent test: We assume that there is a simple omitted variable that predicts Tobin's *q* as strongly as the variable used in row (1), *and also predicts* Disclosure Index as strongly as the variable used in row (2). 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. These bounds are constructed differently than the HHH bounds, but also assume an omitted covariate that predicts both Tobin's *q* and Disclosure Index as strongly as all included covariates taken together.

Consider, as an example, our results for Brazil. 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 ($t = 1.63$). If we foundnd and included a currently omitted variable with similar *t*-statistics for both Tobin's *q* and Disclosure Index, which *weakened* the coefficient on Disclosure Index, the coefficient on Disclosure Index would fall from 0.194 ($t = 3.74$) to 0.179 ($t = 3.60$). In row (2), the covariate that most strongly predicts Brazil Disclosure Index is 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 would only slightly reduce the coefficient on Disclosure Index, to 0.191 ($t = 3.82$). In row (3), we assume a single omitted variable which predicts Tobin's *q* with $t = 3.18$, *and also* predicts Disclosure Index with $t = 3.2$. The lower bound falls to 0.175 ($t = 3.51$). In row (4) we assume that the omitted variable would have the power to predict both *Tobin's q* and the governance index as strongly as all included variables taken together (same *F*-statistics). This strong assumption would reduce the coefficient on the Disclosure Index to 0.108 with a t-value of 2.17. Row (5) again relies on the strength of all included covariates to gauge the size of the potential OMV bias. The coefficient on the Disclosure Index drops slightly to 0.183, but remains significant at the 1% level.

Overall, the lower bounds for Disclosure Index remains statistically strong in Brazil, Turkey, and for the Pooled sample under all possible assumptions concerning the influence of omitted variables. For India and Korea, in contrast, the Disclosure Index results are less robust; they remain 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: (i) the robustness of our Disclosure Index results varies across countries; and (ii) results for Disclosure Index that are pooled across countries are strongly robust to plausible levels of omitted variable bias.

Panel B shows that the results for Board Structure Index – which we found in Table 6 with FE for Korea and pooled across countries – are more vulnerable to concerns with OVB. The Korea results are reasonably strong, and remain significant in rows (1)-(3). The pooled results are weaker, and survive only in rows (1)-(2).

These results suggest the importance of the bounds analysis. Even apparently strong results, such as those for Korea Board Structure Index, which has $t = 4.57$ in Table 6, are potentially vulnerable to OVB concerns. See Nasev, Black and Kim (2018), who compare FE results to those obtained with causal methods, in a case study where both approaches are available, and find a tendency for FE to generate false positives.

4.2 – Disclosure and Board Structure versus Rest of Governance

4.2.1. RE and FE Regression Results

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 studying here the combined power of Disclosure and Board Structure indices, and the combined power of the remaining indices. We create two combined indices: a combination of Disclosure and Board Structure index (*Combined D-BS Index*) and a combination of the remaining indices (*D-BS Index Complement*).[29] Table 9 reports regressions including both combined indices and our usual covariates.

The Combined D-BS Index predicts Tobin's *q* in all samples and specifications except for FE in India. These strong results for the *Combined D-BS Index* are expected, based on the results

[29] These combined indices are normalized to have 0 mean and $\sigma = 1$.

for Disclosure Index and Board Structure Index separately. The novelty is that the other indices have no power to predict firm value, even when combined. With RE, *D-BS Index Complement* is insignificant throughout; with FE, it is insignificant except for a marginally significant, *negative* coefficient in Brazil.[30]

At the methodological level, this result suggests that a governance index that includes disclosure and board structure can capture much of the overall effect of governance in predicting firm value. At a practical level, this suggests that firms, in responding to investor demands for good governance; and investors, in assessing governance quality, can do reasonably well by focusing on disclosure and board structure.

We cannot determine whether the weakness of the other indices in predicting firm value is due to the limited importance of the underlying governance aspects, the weakness of our proxies for those aspects, or both. In separate work on the construct validity of our indices, we confirm that Disclosure Index has reasonable apparent construct validity except in Korea (where we have only three disclosure elements), and Board Structure Index has reasonable apparent construct validity except in India (which could helpt explain why India Board Structure Index does not predict Tobin's *q*) (Black et al., 2017). But also find evidence that construct validity is a concern for Shareholder Rights Index, where it has reasonable apparent construct validity only in Brazil.

4.2.2. Lower Bounds for Combined D-BS Index

In Table 10, we reports lower bounds for the FE coefficients of the *Combined D-BS Index*, using the same lower bounds we applied in Table 8. 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* was not statistically significant, so the lower bounds are also not insignificant. Taken as a whole, the lower bounds exercise supports the power of *Combined D-BS Index* to predict Tobin's *q*.

[30] We remind the reader that there is a large drop in sample size when we move from RE to FE in Brazil.

4.3 – Aspects of Disclosure and Board Structure Indices

In Table 11, we drill down into the Disclosure and Board Structure indices. We separate Disclosure Index into subindices for financial and non-financial disclosure, and separate 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 separate indices into subindices. Thus, a statistically insignificant result could mean that the aspect of governance captured by a particular index is not relevant or that the index poorly captures the underlying construct.[31]

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 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. The differences between the pooled and country-specific results are further evidence of the value of looking at each country separately within a multicountry study, rather than jumping to pooled results.

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. Indeed, comparing Table 6 and Table 10, board independence subindex is generally stronger than Board Structure Index as a whole in Brazil, Turkey, and the pooled results, and similar in strength to Board Structure Index for Korea. The weaker results for India could reflect India's high legal minimum for board independence; this could limit the value that investors ascribe to additional independence, above that minimum.

[31] 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.

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 results, taken as a whole, provide evidence that the board independence predicts Tobin's *q*, while board committee existence and composition largely does not. But they are subject to the caveat, suggested by our weaker results for India, that increasing board independence above an already high legal minimum may not have much additional value.

4.4 – Results for Subsamples

Appendix Table A.6 assesses whether our results were driven by particular subsamples. We split the sample into: manufacturing versus other firms, large versus small firms, high versus low profitability firms, high-growth versus low-growth firms, firms that are part of a business group versus non-group firms, and old versus young firms. Very few coefficients are significantly different across subsamples, and the differences are not consistent across countries. Some of the significant differences are as follows. We find that Disclosure and Board Structure matter more for non-manufacturing firms in Brazil, but nowhere else (Table A.6, Panel A). Board Structure is more important for small firms in Brazil and Shareholder Rights and RPT indices predict higher firm value in small firms in India. In Korea, better Shareholder Rights predict higher (lower) firm value for large (small) firms (Table A.6, Panel B). The coefficients on Disclosure Index are generally higher for high-growth firms, but significantly so only in Brazil. Ownership Structure Index predicts higher firm value for low growth firms in Turkey (Table A.6, Panel C). Differences between old and young firms are almost all insignificant. These results suggest that the results presented above likely apply generally to most firms, rather than being limited to particular subsets.

4.5 Governance and Profitability

Our results suggest that better country-specific disclosure and board structure indices predict firm value. Two possible causal channels could be at work. The first would involve these aspects of governance reducing the cost of capital –investors assign higher value to the same expected cash flows. This channel is plausible; better governance reduces agency risk, so investors could be willing to pay more for the same expected cash flows. Second, better governance could increase firms' future cash flows. This channel is also plausible. Board structure could improve the firm's operating decisions, and thus increase cash flow. Board structure and disclosure could

also affect the ability of controllers to tunnel value away from minority shareholders this could lead to higher reported cash flow, after any remaining tunneling.

In Table 12, we assess the evidence for the second channel by assessing whether the corporate governance indices predict return on assets (ROA). We use a firm FE specification; odd-numbered regressions examine the full indices; even-numbered regressions provide separate results for Disclosure and Board Structure subindices. Only scattered coefficients take on significant coefficients, suggesting a weak link between better governance 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; 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 firms' cash flows, rather than affecting the magnitude of these cash flows.

4.6. Some Limitations of Governance Indices

Governance indices, as measures of firm governance, have a number of weaknesses, which we summarize here. One concern is "construct validity"; how well does a governance index capture unobserved, underlying governance quality.

Despite these weaknesses, these indices are commonly used in corporate governance research because doing so seems preferable to the available alternatives. As we note above, studying a single governance element by itself is strongly prone to OVB, due to omitting the rest of governance. But studying a single element, after controlling for a broad measure of governance, will likely lead to statistical insignificance in many cases, because governance elements are often complements. We saw this above for Disclosure Index. This Index predicts Tobin's *q* in each of our countries, even though individual disclosure elements, controlling for the rest of Disclosure index, are almost always statistically insignificant.

Again as noted above, there will be often be construct validity concerns with governance indices. These become stronger when one studies specific aspects of governance, rather than overall governance, because index strength in capturing one aspect can no longer compensate for weakness in capturing another aspect. Thus, when we assess the construct validity of our indices, the overall indices have reasonable apparent validity across all four countries, despite the weaker construct validity of some specific indices in some countries (Black et al., 2017).

We find evidence that Disclosure Index predicts Tobin's *q*, with the range of disclosures provided by the firms in our sample. This does not imply that disclosure is an unlimited good, regardless of cost (Hermalin and Weisbach, 2012). Within the range of disclosures we observe, there is no easy way to assess possible nonlinearity, given the way that the indices are built, as a sum of disparate elements.

5 – Results for the TR and Asset4 Indices

In this section we investigate the predictive power of common indices using the best available commercial indices, the TR Index and its predecessor, the Asset4 Index, and their subindices. These are "common indices" – they use the same governance elements across countries irrespective of each country's regulatory and legal regimes.

5.1 – Asset4 Index

Table 11 investigates the predictive power of Asset4 Index and its subindices. Panel A reports results for the full Asset4 Index; Panel B reports results for the Modified Asset4 index; and Panel C, for the four subindices of Modified Asset4 Index, included as separate variables in a single regression. Our methodology is the same as in Part 4, with only minor differences in the covariates.[32] The sample for column 1 includes all firms from all emerging markets in the Asset4 database. The sample for column 2 includes only the BIKT countries; the remaing columns study individual BIKT countries.

In Panel A, Asset4 Index is statistically significant only in Brazil. It is insignificant for our other three countries, for the BIKT countries taken together, and is economically small and insignificant for the entire Asset4 sample In Panel B, we remove the "Vision and Strategy"

[32] The differences are: (i) given the small sample sizes in many countries, we drop the market share variable; and (ii) we lack data on ownership and exports/sales for the TR Index regressions.

subindex. The coefficient for Brazil remains significant and positive; the negative coefficient for India becomes marginally significant. The coefficients for the pooled samples flip sign to negative, but remain economically small and statistically insignificant.

In Panel C, we study the four Asset4 subindices. Each column shows results for all four subindices, included in a single regression. For the pooled-across-all-emerging-markets and pooled four-BIKT samples, all coefficients are insignificant, with mixed signs. Shareholder rights subindex is positive and significant but negative for India and Korea.

In Appendix Table A.7 we provide firm FE results for all 15 countries with at least 10 firms included in the Asset4 Index. For these 15 countries, the results Shareholder Rights subindex is positive and significant only for Brazil and Turkey, negative and significant for South Africa, and overall has positive coefficients for 7 of the 15 countries. The Modified Asset4 Index as a whole is positive and significant only in Brazil, and is negative and significant for Russia. Overall, we view these weak, inconsistent results as providing no evidence that Modified Asset4 Index, or any of its subindices, predicts Tobin's q.

In Appendix Table A.8 we also provide results for the Modified Asset4 Index and subindices using OLS and firm RE regressions for all emerging markets and for the BIKT countries together and separately; we discuss the RE results here. For all emerging markets together, and for the BIKT countries together, the coefficients for Modified Asset4 Index are insignificant; the coefficients for subindices are also insignificant with mixed signs. There are scattered significant coefficients, with mixed signs, for individual countries. Overall, there is no evidence that the Modified Asset4 Index or its subindices has power to predict Tobin's q.

5.2. Thomson-Reuters (TR) Index

Table 12 investigates the predictive power of TR Index and its subindices. Sample sizes in individual counries remain modest, ranging from 20 in Turkey to 105 in Korea. These samples are much smaller than we were able to achieve for our country-specific indices. TR Index predicts Tobin's q, if anything, even more weakly than its predecessor. TR Index and its two subindices have no predictive power in any of our four countries, for all four countries together, or for all emerging markets together. The point estimates are tiny, and are negative in two of our four countries.

In Appendix A.4, to further investigate this result we extended the analysis of TR Index to examine indivually the other 15 emerging markets with at least 10 firms included in the index: Chile, Colombia, Egypt, Indonesia, Malaysia, Mexico, Philippines, Poland, Russia, Singapore, South Africa, Taiwan and Thailand. Coefficient signs are mixed, and TR Index is not statistically significant in any country, and is marginally significant only in Chile and Indonesia. The two subindices are not statistically significant or marginally significant in any country.

In Appendix A.5, we provide OLS and firm RE results for the TR Index and its two subindices for all emerging markets and for the BIKT countries together and separately; we discuss the RE results here. None of the coefficients remain significant.

5.3 – Summary for Common Indices

Overall, the TR Index and the Asset4 Index have no apparent power to predict firm value. This is consistent with the proposition that what matters, for the effect of firm-level governance on relative firm value within country, varies across countries in a way that a common index cannot capture. These results support the main approach taken in this paper, in which we examine the power of country-specific indices and subindices to predict firm value.

We cannot assess why the Asset4 and TR indices lack predictive power. Perhaps the aspects of governance that these indices seeks to capture are not important in predicting firm value; perhaps these indices captures those aspects poorly. A common index that emphasized disclosure, or that emphasized elements that are important in emerging markets, might perform better. We can say, however, that the Asset4 and TR indices, which are the best common indices currently available for emerging markets, lack predictive power.

5 – Conclusion

Prior research provides evidence that broad, country-specific governance indices predict firm market value in emerging markets. However, no prior research studies which aspects of governance drives this result in a robust empirical setting with firm FE and extensive covariates, including controls for other aspects of governance. We seek here to begin to fill that gap.

We find that country-specific disclosure indices, which capture firm-level disclosure choices, predict 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 indices predict Tobin's *q*, but only in some countries. The power of our 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. 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, or when pooled across all four countries.

Our lower bounds estimates provide evidence that our principal results, for Disclosure Index, and Combined D-BS Index, are reasonably robust to OVB. In contrast, our Board Structure Results are more vulnerable to plausible levels of OVB.

We also show that, when studying corporate governance across emerging markets, the tempting strategy of studying a pooled sample, using a common index, is likely to work poorly. We find that the TR and Asset4 indices have no power to predict firm market value in a firm FE specification. Moreover, even if a common index did have predictive power, that power for a pooled sample could be driven by a minority of countries, with the index having little predictive value for most countries.

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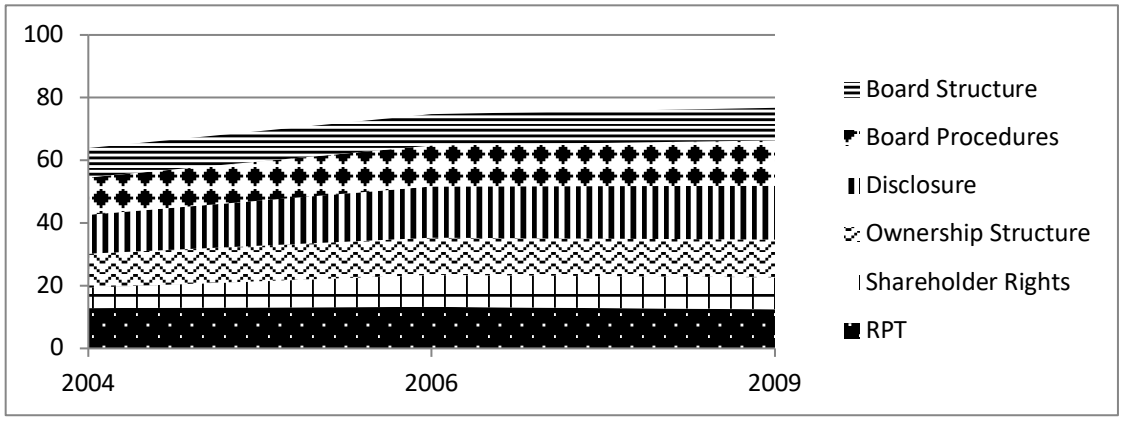
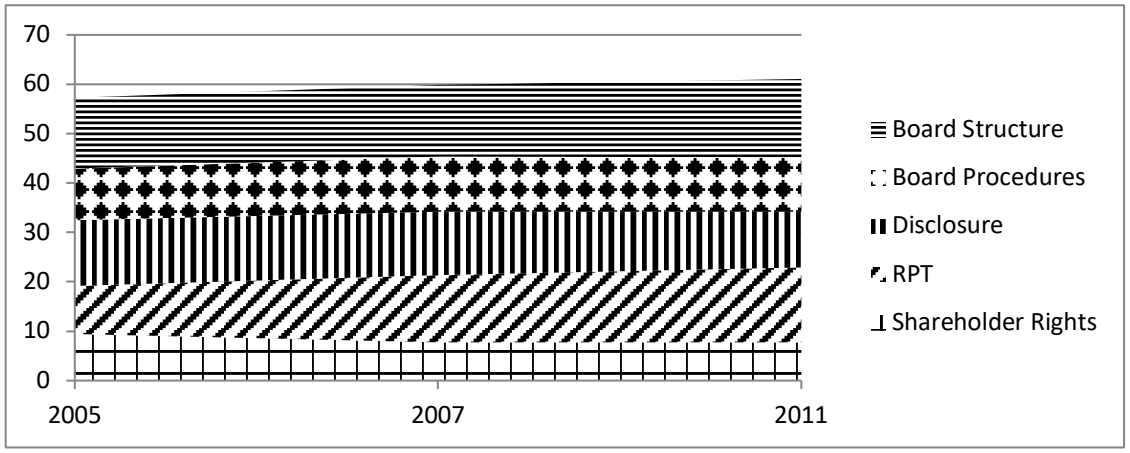
Figure 1. Change in Country *CGI* Indices and Component Indices over Time

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

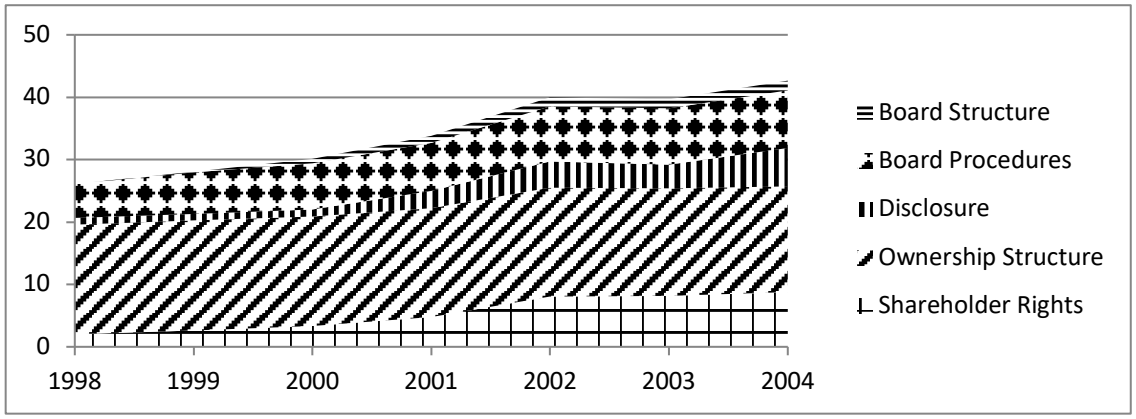
Brazil



India



Korea



Turkey

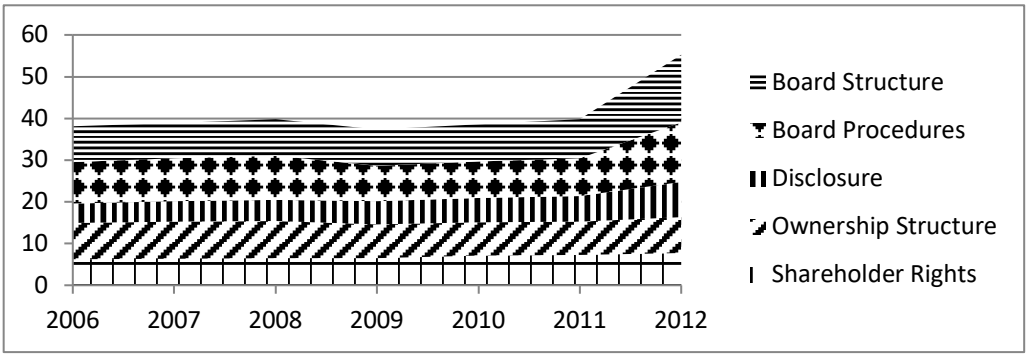

60
50
40
30
20
10
0
2006
2007
2008
2009
2010
2011
2012
Board Structure
Board Procedures
Disclosure
Ownership Structure
Shareholder Rights

Table 1. List of governance elements in each country

Table indicates which governance elements we used in each country. In 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 the version in 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[33]	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
Committee elements				
Audit committee (comm.) exists	**b_bs_11**	NM	**k_bs_11**	NM
Audit comm. has non-executive chair	NA	NA	NM	**t_bs_12**
Compensation comm. exists	NM	**i_bs_16**	**k_bs_16**	NA
Outside director nominating comm. exists	NM	NA	**k_bs_17**	NA
Corporate Governance comm. exists	NM	NA	NM	**t_bs_18**
Permanent or near-permanent fiscal board exists	**b_bs_19**	NM	NM	NM
Board procedure index *General procedure elements*				
≥ 4 regular board meetings per year	NA	NA	**k_bp_1**	NA
> 4 physical board meetings in last year	**b_bp_2 (NP)**	NA	NA	NA
Firm has system to evaluate CEO	**b_bp_3 (NP)**	**i_bp_3**	NA	NA
Firm has system to evaluate other executives	**b_bp_4 (NP)**	**i_bp_4**	NA	NA
Firm evaluates outside or nonexecutive directors	NA	**i_bp_5**	**k_bp_5**	NA
Firm has succession plan for CEO	NA	**i_bp_6**	NA	NA
Firm has nonexecutive director retirement age	NA	**i_bp_7**	NM	NA
Directors receive regular board training	NA	**i_bp_8**	NA	NA
Only-nonexecutives annual meeting exists	NA	**i_bp_9 (NP)**	NM	NA
Only-outside directors annual meeting exists	NM	NA	**k_bp_10**	NA

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

ELEMENTS	BRAZIL	INDIA	KOREA	TURKEY
Board receives materials in advance of meeting	**b_bp_11 (NP)**	**i_bp_11**	NA	NA
Nonexecutives can hire own counsel & advisors	NA	**i_bp_12**	NA	NA
Firm has code of ethics	**b_bp_13 (NP)**	**i_bp_13**	NA	**t_bp_13**
Firm has specific bylaw/policy to govern board	**b_bp_14 (NP)**	NA	**k_bp_14 (NP)**	**t_bp_14**
Directors' positions on board meeting agenda items are recorded in board minutes	NA	NA	**k_bp_15(NP)**	NA
Firm has ≥ 1 foreign outside directors	NM	NA	**k_bp_16**	NA
Shareholders approve *outside* directors' aggregate pay (separate from approval of *all* directors' aggregate pay)	NM	NM	**k_bp_18 (NP)**	NA
Outside directors attend at least 70% of meetings	NA	NA	**k_bp_19**	NA
Audit committee procedure elements				
Firm has internal audit/control function	NA	NA	NM	**t_bpa_1**
Audit comm. members & chair are disclosed	NA	NA	NM	**t_bpa_2**
Firm has bylaws governing audit comm.	NA	**i_bpa_3**	**k_bpa_3 (NP)**	NA
Company discloses audit comm. bylaws	NA	NA	NA	**t_bpa_4**
Audit comm. recommends external auditor	NA	**i_bpa_5**	NA	NA
Outside directors on audit comm. meet separately	NA	**i_bpa_6**	NA	NA
Audit comm. includes accounting or finance expert	NA	NM	**k_bpa_7 (NP)**	NA
Audit comm. (Korea: or internal auditor) approves head of internal audit team	NM	NA	**k_bpa_8 (NP)**	NA
Audit comm. meets at least 4 times per year	NA	NA	**k_bpa_9**	NA
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**
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
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 are avail 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**

ELEMENTS	BRAZIL	INDIA	KOREA	TURKEY
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**
Disclosure reliability elements				
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
Ownership Structure index				
Largest shareholder's fractional ownership of common/voting shares	**b_own_1**	NM	NM[34]	**t_own_1**
1.5*((common shares/(total shares)-1/3)	**b_own_2**[35]	NM	NM	NM
Ownership parity[36]	**b_own_3**	NM	**k_own_3**	**t_own_3**
Size of control group[37]	**b_own_5**	NA	NA	NM
Firm has an outside 5% institutional investor	**b_own_6**	Feasible	NA[38]	**t_own_6**
Controllers do not have special nomination rights	NM	NM	NM	**t_own_7**
Class of shares with preferred voting rights does not exist	NM	NM	NM	**t_own_8**
Shareholder Rights index				
All directors serve one year terms	**b_sr_1**	NA	NM	NA
Outside directors serve one year terms	NA	**i_sr_2**	NA	**t_sr_2**
Firm allows voting by postal ballot	NM	**i_sr_3**	k_sr_3	NM
Company has policy against insider trading	NA	**i_sr_4**	NA	**t_sr_4**
Board includes at least one member elected by minority shareholders	**b_sr_5 (NP)**	**i_sr_5**	NM	NA
Cumulative voting for election of directors	Feasible (NP)	NM	**k_sr_6**	NM
Director candidates disclosed to shareholders in advance of shareholder meeting	NM	NA	**k_sr_7**	NA
No class of shares w. special nomination rights (except to give rights to 2nd major shareholder)	NM	NM	NM	**t_sr_8**

[34] Fraction of shares held by controlling shareholder and relatives. Controlling shareholder may not be largest shareholder. For example, a chaebol firm may be controlled by its chairman, but the largest owner may be another member of the chaebol group. Data on largest single shareholder is not available.

[35] Under Brazilian law the ratio of common/total shares must be at least 1/3; so under this formula, element values span [0, 1].

[36] Ownership parity = (1 – disparity), disparity = (fraction of voting rights held by all affiliated shareholders - ownership by controlling shareholder and family members). In Brazil, use 1 – (fraction of common [voting] shares held by largest owner)/(fraction of total shares held by largest owner)).

[37] Defined as (((no. of members of control group, winsorized at 11) -1)/10). Number of members of shareholder agreement, if any; otherwise, number of 5% shareholders who together hold 50% of common shares, or 11 (if all together own less than 50%).

[38] Korean firms must disclose 5% blockholders, but these include insiders (family members and affiliated firms), so it is nontrivial to identify outside 5% blockholders. For each firm, one needs to exclude related parties. Firms that belong to a *chaebol* group must identify their related parties, but there is no similar requirement for other firms.

ELEMENTS	BRAZIL	INDIA	KOREA	TURKEY
No class of shares w. multiple voting rights	NA	NM	NM	**t_sr_9**
No founder shares or other special cash flow rights	NA	NM	NM	**t_sr_10**
Firm has investor relations department (or contact person)	NM	NA	NA	**t_sr_11**
Freezeout offer to minority shareholders based on shares' economic value	**b_sr_12**	NM	NM	NM
Takeout rights on sale of control above legal minimum	**b_sr_13**	NM	NM	NA
Disputes with shareholders subject to arbitration	**b_sr_14**	NM	NM	NM
Firm has no authorized capital or provides preemptive rights	**b_sr_15 (NP)**	NM	NM	NM
Free float is at least 25% of total shares	**b_sr_16 (NP)**	NA	NA	NA
Related Party index ***RPT Volume elements***				
No loans to insiders	b_rpt_1 (NP)[39]	NA	NA	t_rpt_1[40]
No significant sales to/purchases from insiders	b_rpt_2 (NP)	NA	NA	NA
No real property rental from or to an insider	b_rpt_3 (NP)	NA	NA	NA
Negligible revenue from RPTs (0-1% of sales)	NA	NA	NA	t_rpt_4
No significant RPTs (RPTs/sales < 5%)	NA	NA	NA	t_rpt_5
No RPTs needed board/audit committee approval in last 3 years	NA	NA	NA	NA
RPTs are on arms-length terms	NA	i_rpt_7	NM	NA
RPT approval elements				
RPTs require board approval	**b_rpt_8(NP)**	i_rpt_8 (NP)	NA	NM
RPTs require approval by noninterested directors	**b_rpt_9 (NP)**	i_rpt_9 (NP)	NA	NA
RPTs require approval by noninterested shareholders	**b_rpt_10 (NP)**	NA	NA	NA
RPTs with *executives* approved by board, audit committee or shareholders	NA	**i_rpt_11**	NM	NA
RPTs with *executives* approved by audit committee or non-interested directors	NA	**i_rpt_12**	NA	NA
RPTs with executives approved by shareholders	NA	**i_rpt_13**	NM	NA
RPTs with *controlling shareholder* approved by board, audit committee or shareholders	NA	**i_rpt_14**	NA	NA
RPTs with *controlling shareholder* approved by audit committee or non-interested directors	NA	**i_rpt_15**	NA	NA
RPTs banned by company charter	**b_rpt_16**	NA	NM	NA

[39] Brazil: Elements b_rpt_1, b_rpt_2, and b_rpt_3 are based on a single survey question: Does firm have loans to insiders, significant sales to or purchases from insiders, **or** rent real property to or from insiders. We treat them as a single element in computing related party index for Brazil.

[40] Turkey: Data available, but element not used because we do not have sufficient RPT elements to build an RPT Index, because t_rpt_4 and t_rpt_5 measure about the same thing.

Table 2. Summary statistics on governance samples.

For Korea (and Turkey) our sample includes almost all public firms listed on the Korea Stock Exchange (Borsa Istanbul). For Brazil and India, we rely on private surveys. The table shows the coverage of public firms in each country, by survey year.

Brazil sample. 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 is 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.

Survey year	Public firms	Sample (% of public firms)	Market cap (US$ billions)	Capitalization of responding firms (% of public firms)
2004	261	63 (24%)	524	260 (49%)
2006	233	92 (39%)	821	495 (60%)
2009	254	97(38%)	1,191	747 (62%)
2004 & 2006	254	28		
2004 & 2009	254	21		
2006 & 2009	254	53		
all 3 surveys	254	17		
at least one survey	254	142 (56%)	1,191	854 (72%)

India sample. Total number of firms and market capitalization for all firms which responded to the 2006, 2007 and 2012 India corporate governance surveys. Market capitalization is based on exchange rate at Dec. 31, 2012 of R$1.75/US$1. Market capitalization and number of Indian private firms is 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.

Survey year	Public firms	Sample (% of public firms)	Market cap (US$ billions)	Capitalization of responding firms (% of public firms)
2006	2,526	260 (10%)	115	21 (18%)
2007	2,872	367 (13%)	866	47 (5%)
2012	2,986	220 (7%)	473	38 (8%)
2006 & 2007	2,367	134 (6%)		
2006 & 2012	2,322	85 (4%)		
2007 & 2012	1,985	148 (8%)		
all 3 surveys	1,955	57 (3%)		
at least one survey	3,665	537 (15%)	473	60 (13%)

Korea sample Number and market capitalization of firms (excluding banks and SOEs) listed on Korea Stock Exchange and of firms (excluding banks and SOEs) in the sample. They are obtained at year end. Market capitalization in US dollar terms are obtained by using each year-end's won/dollar exchange rate.

Survey year	Korea Stock Exchange (KSE) firms	Sample (% of KSE firms)	Market cap (US$ billions)	Capitalization of responding firms (% of KSE firms)
1998	733	469 (64%)	78.24	52.39 (67%)
1999	708	489 (69%)	207.37	161.83 (78%)
2000	690	516 (75%)	99.31	84.65 (85%)
2001	670	538 (80%)	135.62	126.73 (93%)
2002	661	444 (67%)	153.37	134.76 (88%)
2003	661	636 (96%)	219.24	208.55 (95%)
2004	668	497 (74%)	317.98	237.68 (75%)

Turkey sample Total number of firms and market capitalization for all companies on National Market (Source: Borsa Istanbul (http://www.borsaistanbul.com/en/). Market capitalization is based on exchange rate at Dec. 31st of respective years. Sample excludes banks and SOEs. Sample firms exclude state-controlled firms, banks, and subsidiaries of foreign companies.

Survey year	Public firms	Sample (% of all public firms)	Market cap (US$ billions)	Capitalization of sample firms (% of public firms)
2006	290	188 (65%)	96	91 (95%)
2007	292	188 (64%)	161	154 (96%)
2008	284	187 (66%)	60	58 (97%)
2009	233	227 (97%)	130	127 (97%)
2010	241	199 (83%)	180	171 (95%)
2011	237	201 (85%)	129	120 (93%)
2012	242	206 (85%)	193	178 (92%)

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

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 less, 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	

Table 5. Definitions for 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.

	Definitions	Avail
Tobin's *q*	(book value of debt + market value of common stock)/ book value of assets	BIKT
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**	Earnings before interest and tax (EBIT)/total 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)	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

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 (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**.

	Brazil		**India**		**Korea**		**Turkey**		**Pooled BIKT Sample**		
Regression	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**RE**	**FE**	**Weighted FE**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**
Disclosure	**0.144*** **	**0.194*** **	**0.071** **	**0.094** **	**0.026*** **	**0.023*** **	**0.077*** **	**0.070*** **	**0.050*** **	**0.040*** **	**0.052*** **
	(4.14)	**(3.74)**	**(2.22)**	**(2.23)**	**(3.91)**	**(3.12)**	**(3.71)**	**(3.02)**	**(5.65)**	**(4.55)**	**(3.76)**
Board Structure	**0.082*** **	0.065	0.024	0.021	**0.028*** **	**0.033*** **	-0.001	0.016	**0.021*** **	**0.020** **	0.011
	(3.09)	(1.57)	(0.97)	(0.59)	**(4.37)**	**(4.57)**	(-0.06)	(0.79)	**(2.64)**	**(2.26)**	(0.80)
Board Procedure	-0.006	-0.001	-0.025	-0.036	0.007	0.006	-0.003	-0.008	0.001	-0.001	-0.009
	(-0.27)	(-0.03)	(-0.91)	(-0.85)	(1.31)	(0.94)	(-0.17)	(-0.44)	(0.13)	(-0.14)	(-0.86)
Shareholder Rights	0.016	-0.028	0.011	0.025	0.001	0.001	0.011	0.006	0.007	0.007	0.011
	(0.48)	(-0.41)	(0.40)	(0.73)	(0.07)	(0.07)	(0.71)	(0.41)	(0.62)	(0.61)	(0.77)
Ownership Structure	-0.014	**-0.099** **			*-0.012**	*-0.015**	0.013	*0.062**	-0.000	-0.003	-0.011
	(-0.50)	**(-2.04)**			*(-1.68)*	*(-1.74)*	(0.61)	*(1.97)*	(-0.04)	(-0.32)	(-0.73)
Related Party Transactions	-0.018	-0.033	0.011	0.027					0.009	0.022	0.011
	(-0.84)	(-1.32)	(0.42)	(0.95)					(0.42)	(0.93)	(0.55)
Joint significance	0.0000	0.0015	0.2311	0.2374	0.0000	0.0000	0.0052	0.0068	(0.0000)	(0.0000)	(0.0000)
Hausman test	0.0000		0.0032		0.0000		0.0000		0.0000		
CRE test	0.20		0.34		0.20		0.07		0.3202		
Random effects λ	0.384		0.309		0.614		0.715		0.691		
R^2	0.426	0.589	0.409	0.463	0.541	0.393	0.424	0.490	0.520	0.536	0.409
Number of firms	159	81	401	199	646	644	195	193	5,175	5,175	4,892
No. of observations	236	158	613	411	3,107	3,105	1,092	1,090	1,403	1,403	1,120

Table 7. Governance Elements and Firm Value

Table shows coefficients for firm fixed effects (FE) regressions of *ln*(Tobin's *q*) on individual governance elements of the Disclosure subindex, the rest of the Disclosure subindex, other subindices, covariates, year dummies, and constant term. Subindices 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. 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. Coefficients are suppressed for covariates and for governance elements of subindices other than Disclosure. *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**.

Governance Element	Brazil				India				Korea				Turkey			
	Coef. (*t*-value)		Rest of Subindex (*t*-value)		Coef. (*t*-value)		Rest of Subindex (*t*-value)		Coef. (*t*-value)		Rest of Subindex (*t*-value)		Coef. (*t*-value)		Rest of Subindex (*t*-value)	
dis_1	0.007	(0.05)	**0.187*** **	**(3.74)**	0.074	-0.67	**0.089** **	**(2.11)**								
dis_2	**0.262** **	**(2.05)**	**0.125*** **	**(2.66)**	0.025	-0.33	**0.092** **	**-2.17)**	**0.052*** **	**(3.12)**	0.004	(0.59)				
dis_3	0.078	(0.55)	**0.173*** **	**(3.26)**	-0.017	(-0.20)	0.099*	(1.76)					0.009	(0.19)	**0.097** **	(2.35)
dis_4	0.224	(1.28)	**0.153** **	**(2.49)**												
dis_5	-0.082	(-0.52)	**0.200*** **	**(3.63)**	0.125	-1.39	0.05	(1.04)					0.033	(0.77)	**0.086** **	(2.15)
dis_6					0.035	-0.45	0.08	(1.51)					0.015	(0.33)	**0.094*** **	(2.61)
dis_7	-0.079	(-0.67)	**0.215*** **	**(3.84)**					-0.004	(-0.08)	**0.020*** **	(2.82)	0.057	(1.60)	**0.083** **	(2.33)
dis_8	0.093	(1.05)	**0.166*** **	**(3.37)**												
dis_9	0.056	(0.33)	**0.172** **	**(2.21)**												
dis_10	0.1	(0.93)	**0.173*** **	**(3.20)**												
dis_11					0.019	-0.3	**0.092** **	**(2.18)**								
dis_12													0.021	(0.43)	**0.095*** **	(2.97)
dis_13					0.410*	-1.9	0.084*	(1.94)								
dis_14					0.083	-1.07	0.063	(1.26)								
dis_15					**0.159** **	**-2**	0.038	(0.77)					0.022	(0.60)	**0.091** **	(2.44)
dis_16													0.007	(0.21)	**0.099*** **	(2.74)
dis_17	0.17	(0.84)	0.135*	(1.95)									0.05	(1.45)	**0.084*** **	(2.59)
dis_18													-0.007	(-0.13)	**0.102** **	(2.39)
dis_19													0.013	(0.37)	**0.096*** **	(3.07)
dis_20													-0.012	(-0.34)	**0.110*** **	(3.04)
dis_21													0.04	(1.10)	**0.091*** **	(2.81)
dis_22													0.047	(1.16)	**0.092*** **	(2.89)
dis_23													0.021	(0.49)	**0.098*** **	(3.00)
dis_24													-0.011	(-0.21)	**0.102*** **	(3.31)
dis_25													-0.016	(-0.47)	**0.108*** **	(3.04)
dis_26									0.004	(0.25)	**0.021*** **	(2.93)	0.028	-0.86)	**0.092*** **	(2.58)
dis_27													**-0.047** **	(-2.05)	**0.124*** **	(3.71)
dis_28													0.007	-0.17)	**0.100*** **	(2.97)
dis_29													-0.001	(-0.02)	**0.101*** **	(3.21)
dis_30													0.004	-0.13)	**0.102*** **	(2.99)
dis_31													0.019	-0.50)	**0.096*** **	(2.96)
dis_32													-0.013	(-0.38)	**0.106*** **	(3.18)
dis_33	0.046	(0.63)	**0.201*** **	**(3.42)**	0.056	-0.82	0.087*	(1.84)								
dis_34					0.056	-0.77	0.087*	(1.82)								
dis_35					-0.169	(-1.49)	**0.097** **	**(2.22)**								
dis_36					-0.064	(-0.85)	**0.103** **	**(2.53)**								

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) and Board Structure Index (Panel B) 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 of 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)**	**0.094** (2.23)**	**0.023*** (3.12)**	**0.070*** (3.02)**	**0.040*** (4.55)**
HHH	**(1)**	***q***	**0.179*** (3.60)**	0.079* (1.80)	**0.019*** (2.47)**	**0.066*** (2.77)**	**0.039*** (4.43)**
	(2)	**governance index**	**0.191*** (3.82)**	**0.090*** (2.05)**	**0.019*** (2.46)**	**0.066*** (2.78)**	**0.039*** (4.51)**
	(3)	**(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**	**0183*** (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)	0.021 (0.59)	**0.033*** (4.57)**	0.016 (0.79)	**0.020** (2.26)**
HHH	**(1)**	***q***	0.059 (1.59)	0.006 (0.16)	**0.032*** (4.41)**	-0.006 (-0.01)	**0.019** (2.12)**
	(2)	**governance index**	0.068* (1.82)	0.016 (0.41)	**0.032*** (4.41)**	-0.006 (-0.01)	**0.020** (2.22)**
	(3)	**(1) + (2)**	0.056 (1.51)	-0.003 (-0.08)	**0.032*** (4.41)**	-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)

Table 9. 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 and sample, and exclusion of outliers are 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	Pooled Weighted
RE	**Combined D-BS Index**	**0.176*** (5.83)**	**0.063** (2.02)**	**0.045*** (6.21)**	**0.046** (2.32)**	**0.057*** (5.69)**	
	D-BS index complement	-0.015 (-0.59)	0.006 (0.24)	0.008 (1.14)	0.020 (1.02)	0.006 (0.77)	
	number of observations	236	613	3099	1121	5175	
	number of firms	158	401	645	195	1403	
FE	**Combined D-BS Index**	**0.194*** (3.54)**	*0.078** (1.77)*	**0.046*** (5.85)**	**0.054** (2.28)**	**0.050*** (4.85)**	**0.051*** (2.96)**
	D-BS index complement	*-0.057** (-1.81)*	0.024 (0.82)	0.006 (0.86)	0.017 (0.78)	0.006 (0.65)	0.005 (0.38)
	number of observations	158	411	3098	1119	4892	4892
	number of firms	81	199	644	194	1120	1120

Table 10. Lower bounds on FE estimates for the Combined Disclosure and Board Structure Indices

Table presents lower bounds on FE estimates for combined D-BS Index using HHH and ACETO methods. Lower bounds are defined in Table 7. *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**
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)	**(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)**

Table 11. 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 and sample are 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 both disclosure subindices and both 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***** **(3.57)**	**0.144**** **(2.01)**	0.027 (0.70)	0.040 (0.86)	**0.027***** **(4.12)**	**0.024***** **(3.26)**	**0.040**** **(2.40)**	*0.031** *(1.76)*	**0.042***** **(5.40)**	**0.033***** **(4.15)**	**0.034***** **(2.82)**
Non-financial disclosure	0.024 (0.89)	0.046 (1.10)	**0.075**** **(2.15)**	*0.078** *(1.78)*	0.004 (0.84)	0.003 (0.58)	0.043* (1.79)	0.042 (1.62)	**0.020***** **(2.84)**	**0.016**** **(2.20)**	**0.030***** **(2.62)**
Board independence	**0.103***** **(4.28)**	**0.093**** **(2.54)**	0.026 (1.05)	0.007 (0.25)	**0.018***** **(3.30)**	**0.019***** **(3.19)**	0.013 (0.79)	*0.037** *(1.96)*	**0.022***** **(3.02)**	**0.020***** **(2.61)**	*0.021** *(1.84)*
Board committees	0.010 (0.36)	-0.011 (-0.22)	0.012 (0.49)	0.002 (0.08)	**0.014**** **(2.26)**	**0.017***** **(2.69)**	-0.016 (-0.96)	-0.024 (-1.22)	0.004 (0.54)	0.004 (0.55)	-0.007 (-0.58)
Board procedure	-0.008 (-0.33)	-0.007 (-0.21)	-0.033 (-1.21)	-0.042 (-1.02)	0.007 (1.27)	0.006 (0.91)	0.000 (0.03)	-0.005 (-0.27)	0.001 (0.10)	-0.001 (-0.11)	-0.009 (-0.88)
Shareholder rights	0.001 (0.02)	-0.018 (-0.28)	0.009 (0.36)	0.025 (0.76)	0.001 (0.13)	0.001 (0.12)	0.008 (0.54)	0.001 (0.07)	0.008 (0.64)	0.008 (0.64)	0.010 (0.69)
Ownership structure	-0.014 (-0.50)	**-0.102**** **(-2.01)**			*-0.012** *(-1.71)*	*-0.015** *(-1.77)*	0.013 (0.63)	**0.063**** **(2.04)**	-0.001 (-0.10)	-0.003 (-0.38)	-0.011 (-0.75)
Related party transactions	-0.014 (-0.65)	-0.028 (-1.15)	0.002 (0.06)	0.015 (0.55)					0.005 (0.25)	0.018 (0.78)	0.009 (0.43)
Joint significance (disclosure and board structure)	0.0000	0.0020	0.0156	0.1848	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		0.675		0.022		0.271		0.5220		
Random effects λ	0.387		0.307		0.622		0.717		0.691		
R^2	0.42	0.59	0.38	0.45	0.53	0.39	0.42	0.48	0.54	0.41	0.43
No. of observations	236	158	613	411	3,099	3,098	1,121	1,199	5,175	4,892	4,892
No. of firms	159	81	401	199	645	644	195	193	1,403	1,120	1,120

Table 12. Governance Indices and Profitability across Countries

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 and sample are same as in Table 6 except for Net Income/assets and EBIT/Sales that are dropped. 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**.

VARIABLES	Brazil		India		Korea		Turkey		BIKT Pooled			
	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	Weighted-FE	Weighted-FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Disclosure	**0.044****		-0.002		-0.004		0.002		-0.001		0.002	
	(2.10)		(-0.52)		(-1.27)		(0.34)		(-0.24)		(0.60)	
Financial Disclosure		*0.041**		0.001		**0.024*****		-0.002		-0.002		-0.000
		(1.86)		(0.22)		**(3.09)**		(-0.36)		(-1.01)		(-0.17)
Non-financial Disclosure		0.017		-0.004		0.002		0.004		0.002		0.004
		(1.56)		(-0.65)		(0.25)		(0.73)		(0.86)		(1.40)
Board Structure	-0.022		0.004		0.005		-0.005		0.002		-0.003	
	(-1.44)		(1.16)		(1.34)		(-1.05)		(0.65)		(-0.98)	
Board Independence		**-0.050*****		0.002		**0.018*****		-0.004		**0.006****		-0.003
		(-3.39)		(0.63)		**(3.81)**		(-1.00)		**(2.26)**		(-0.90)
Board Committees		*0.028**		0.004		**0.018*****		-0.002		-0.002		0.001
		(1.91)		(1.12)		**(2.72)**		(-0.54)		(-1.03)		(0.52)
Board Procedure	0.010	0.012	*0.009**	*0.009**	0.002	0.006	*0.007**	0.006	0.003	0.003	**0.005****	0.005*
	(1.08)	(1.25)	*(1.85)*	*(1.71)*	(0.56)	(0.98)	*(1.66)*	(1.44)	(1.27)	(1.25)	**(2.17)**	(1.89)
Shareholder Rights	**-0.055*****	-0.032	-0.002	-0.002	0.005	0.000	**-0.007****	**-0.007****	-0.000	-0.000	-0.003	-0.003
	(-2.94)	(-1.56)	(-0.40)	(-0.43)	(0.68)	(0.02)	**(-2.43)**	**(-2.45)**	(-0.03)	(-0.08)	(-1.22)	(-1.26)
Ownership Structure	-0.015	-0.012			-0.006	-0.011	0.005	0.005	-0.003	-0.003	-0.003	-0.003
	(-0.99)	(-0.88)			(-0.85)	(-1.14)	(0.90)	(0.88)	(-0.44)	(-0.47)	(-0.67)	(-0.61)
RPTs	-0.008	-0.009	0.001	0.001					-0.000	0.000	-0.001	-0.001
	(-0.89)	(-0.88)	(0.26)	(0.22)					(-0.08)	(0.04)	(-0.20)	(-0.32)
Observations	159	159	411	411	3,098	3,098	1,119	1,119	4,892	4,892	4,892	4,892
Firms	81	81	199	199	644	644	193	193	1,120	1,120	1,120	1,120
Within-R^2	0.750	0.791	0.374	0.376	0.174	0.380	0.208	0.208	0.217	0.219	0.304	0.305

Table 13. Asset4 Index and Firm Value

Coefficients for 2002-2016 from firm fixed effects regressions of *ln*(Tobin's *q*) on normalized Asset4 Index. Covariates are ln(asset), leverage, EBIT/sale, Net income/assets, free float, sales growth, PPE/sales, Capex/PPE, R&D/sales, Advertising/sales, inside ownership, Exports/sales, year dummies (country × year dummy interactions for pooled regressions), and constant term (coefficients are suppressed). Variables are winsorized at 1% and 99%, except for *ln*(assets). The sample in column (1) includes the following countries (number of firms): Brazil (74), Chile (18), India (52), Indonesia (29), Korea (102), Malaysia (37), Mexico (29), Philippines (19), Poland (19), Russia (29), Singapore (30), S. Africa (39), Taiwan (110), Thailand (27), and Turkey (19). Panel A uses full Asset4 Index (average of four subindices); Panel B uses normalized Modified Asset4 Index (after removing "Vision and Strategy" subindex); Panel C uses the four remaining subindices, normalized, as separate variables. *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**.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	**All Emerging Markets**	**BIKT**	**Brazil**	**India**	**Korea**	**Turkey**
Panel A. Asset4 Index						
Asset4 Index	0.002	0.019	**0.083*** **	-0.040	0.002	0.041
	(0.15)	(0.96)	**(2.97)**	(-1.17)	(0.06)	(0.76)
Within R^2	0.516	0.532	0.677	0.490	0.591	0.752
Panel B. Modified Asset4 Index						
Modified Asset4 Index	-0.006	-0.006	**0.067** **	-0.055*	-0.006	0.051
	(-0.48)	(-0.11)	**(2.61)**	(-1.67)	(-0.20)	(1.04)
Within R^2	0.516	0.394	0.674	0.492	0.591	0.753
Panel C. Regressions using Subindices						
Board Functions	0.005	-0.002	0.022	-0.017	0.012	-0.008
	(0.57)	(-0.09)	(0.69)	(-0.47)	(0.65)	(-0.16)
Board Structure	-0.002	-0.015	0.001	-0.011	-0.014	-0.035
	(-0.23)	(-1.31)	(0.03)	(-0.50)	(-0.74)	(-1.52)
Compensation Policy	-0.006	0.008	0.015	-0.016	0.002	0.038*
	(-0.84)	(0.65)	(0.62)	(-0.76)	(0.13)	(2.05)
Shareholder Rights	-0.007	0.013	**0.062** **	-0.031	-0.009	**0.124** **
	(-0.63)	(0.74)	**(2.27)**	(-0.89)	(-0.29)	**(2.60)**
Within R^2	0.516	0.533	0.676	0.492	0.592	0.783
Observations	3125	1404	381	459	463	101
Firms	585	258	70	75	96	17

Table 14. Thomson Reuters Governance Index (TR Index) and Firm Value

Panel A: Coefficients from firm fixed effects regressions for 2008-2016 of *ln*(Tobin's *q*) on normalized TR Index and covariates. Panel B is similar but reports coefficients for the two subindices of the TR Index (Management and Shareholders), normalized, included in the same regression. Covariates are *ln*(assets), leverage$^{\omega}$, *ln*(years since IPO), EBIT/sales$^{\omega}$, net income/assets$^{\omega}$, sales growth$^{\omega}$, PPE/Sale$^{\omega}$, Capex/ppe$^{\omega}$, free float, R&D/sale$^{\omega}$, advertising/sale$^{\omega}$, year dummies, and constant term (coefficients are suppressed). Covariates marked with $^{\omega}$ are winsorized at 1% and 99%.. *t*-statistics, using firm clusters, are in parentheses. Sample for All Emerging Markets (column (1)) includes the following countries (number of firms): Brazil (74), Chile (18), Colombia (7), Egypt (7), India (52), Indonesia (37), Malaysia (37), Mexico (29), Philippines (19), Poland (19), Russia (29), Singapore (30), South Africa (39), Korea (102), Taiwan (110), Thailand (27), and Turkey (19). *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	**All Markets**	**BIKT**	**Brazil**	**India**	**Korea**	**Turkey**
Panel A. Using Full TR Index						
TR Index	0.002	-0.006	0.031	-0.029	-0.019	-0.003
	(0.26)	(-0.51)	(1.14)	(-1.55)	(-1.22)	(-0.13)
Within R^2	0.313	0.304	0.414	0.519	0.331	0.631
Panel B. Using Subindices						
Management Subindex	0.003	-0.001	0.021	-0.005	-0.011	-0.005
	(0.54)	(-0.12)	(1.01)	(-0.29)	(-0.87)	(-0.28)
Shareholders Subindex	-0.001	-0.008	0.024	-0.025*	-0.012	0.003
	(-0.10)	(-0.84)	(0.85)	(-1.86)	(-1.12)	(0.13)
Observations	3,564	1,303	423	237	530	108
Firms	652	248	74	52	102	19
Within R^2	0.313	0.304	0.414	0.522	0.331	0.632