

Perils in Multicountry Studies of Corporate Governance: Time-Series Evidence from the BRIKT Countries (Brazil, Russia, India, Korea, Turkey)

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Perils in Multicountry Studies of Corporate Governance: Time-Series Evidence from the BRIKT Countries (Brazil, Russia, India, Korea, Turkey)

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Abstract. We study here the effect of firm-level corporate governance on market value in emerging markets; we put developed markets aside. Despite hundreds of studies, we still know rather little about which aspects of corporate governance matter, for which firms, in which markets. Existing studies fall into two categories: they are either "deep and narrow", studying governance in depth within a single country, sometimes with panel data; or "shallow and broad", studying many firms across many countries, with limited governance measures and few firm-level control variables. Cross-sectional results provide a weak basis for causal inference; while single-country results may not be generalizable. This paper introduces a "middle ground": we combine rich analysis of firm-level governance characteristics with a cross-country study. We study Brazil, Russia, India, Korea, and Turkey (together, "BRIKT") and develop, largely by hand, time-series governance data in each. We address "construct validity" (what counts as "good" corporate governance depends on local norms and institutions) by building country-specific indices. We then assess, with firm fixed effects and extensive controls, whether an overall governance index predicts firm market value (proxied by Tobin's q) in each country, and how fixed effects results differ from cross-sectional OLS, pooled OLS, and firm random effects. We also discuss the sensitivity of our results to index construction; choice of control variables; and how we handle outliers. Our country-specific indices have power to predict Tobin's q ; in contrast, the best "common index" we can build has little or none.

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

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

1 – Introduction

We study here the effect of firm-level variation in corporate governance on firm market value in emerging markets.¹ For many topics in corporate finance, the US, UK, and a few other developed countries provide an adequate “laboratory.” They offer a large sample of public companies, good financial disclosure, and time series data. For corporate governance, however, the aspects of governance that affect firm value depend on prevailing legal rules and other institutions. In the US and UK, a dominant concern is ensuring that the firm is well managed. Most firms are widely held, so takeover defenses are central in measuring governance (e.g., Gompers, Ishii and Metrick, 2003; Bebchuk, Cohen, and Ferrell, 2009). In emerging markets, in contrast, most firms have a control group, making takeover defenses irrelevant, and a principal concern is limiting self-dealing by controllers (e.g., Bebchuk and Hamdani, 2009; Bertrand, Duflo, and Mullainathan, 2004) Moreover, legal rules and institutions vary widely across countries. There is little hope of inferring regularities in corporate governance by studying a particular country, and little hope of understanding governance in emerging markets by studying developed ones.

Yet, when we venture into emerging markets, especially multiple markets at once, we have to deal with an array of technical yet crucial problems, including: (i) how to measure corporate governance in each country; (ii) how to obtain time series data; (iii) how to address limited sample size and limited availability of control variables; and (iv) how to deal with imperfect financial data reporting. Existing studies fall into two distinct categories: they are either “deep and narrow”, studying governance in depth within a single country, sometimes with panel data, sometimes not; or “shallow and broad”, studying many firms across many countries (“massively multicountry”), with limited governance measures and relatively few firm-level control variables. Neither approach provides a strong basis for causal inference.

In this article we describe the perils in multicountry studies of corporate governance, and discuss responses. The best known issue is endogeneity. The literature is dominated by cross-sectional regressions. Only a few single-country studies and none of the massively multicountry studies have time series data. Omitted firm characteristics can easily lead to omitted variable bias (OVB). Many studies also focus on one or a few aspects of governance (say board independence or disclosure). But different aspects of governance often correlate. Unless one builds a broad governance index, the omitted aspects of governance are an omitted variable, and thus a source of OVB for the included aspects.

¹ We put aside the effects of country-level governance – the “LLSV and all that” line of research on how country level governance affects capital markets and economic performance. See, e.g., La Porta et al. (1997, 1998a, 1998b); Glaeser, Johnson and Shleifer (2001); Levine and Zervos (1998).

A second, less studied but more fundamental issue is lack of data on governance. One often sees efforts to use a common set of elements to build a multicountry index and then pool all countries together in a single regression.² As we will show, it is impossible to use public data to build a broad governance index based on common elements, even across the five countries we study. It is nearly impossible to do so even relying on private surveys of firms (as we do in Brazil, India, and Korea). And if we try, the best common index we can build predicts nothing. Data on control variables is also often hard to come by.

A third, also more fundamental issue is “construct validity” – a term we borrow from education and psychology (see Shadish, Cook and Campbell, 2002, for an overview). In education, a test score is an imperfect measure of underlying skill. Similarly, a governance index is a construct that imperfectly measures underlying governance quality. There is no direct way to quantify the direction and magnitude of the gap between the construct and the underlying concept. Moreover, what matters in governance often depends on local norms and institutions; thus, the same construct may be a better fit for underlying governance in some countries than in others. Consider, for example, an audit committee. These committees might be useful– but we can’t measure their value in India and Turkey, where they are required, nor in Russia, where board committees are formally not permitted; and can learn little in Brazil, where many firms employ the substitute Brazilian institution of the “fiscal board.”

We seek here to make progress on all three dimensions: better methods; better data; and close attention to construct validity. We conduct longitudinal research projects in five major emerging markets -- Brazil, Russia, India, Korea, and Turkey (together, “BRIKT countries”). Together, these countries provide a representative sample of the results one might expect in moderately developed emerging markets. They differ in many ways, including legal traditions, language, culture, geographic location, and background legal rules.

We address construct validity by building country-specific indices which reflect local norms and institutions. Each is comprised (data permitting) of subindices for board structure, board procedure, disclosure, ownership structure, minority shareholder rights, and control of related party transactions. Each subindex is comprised of one or more “elements” that capture specific aspects of governance that we believe to be important in each country. The indices and subindices for each country are broadly similar, but reflect the rules and data limitations in each country.

We then assess, in a firm fixed effects framework, whether governance affects firm market value (proxied by Tobin’s q) in each country, what generalizes across countries, and how firm fixed effects (FE)

² Studies using this approach include Durnev and Kim (2005); Klapper and Love (2004); Dahya, Dimitrov, and McConnell (2008) (board independence); Doidge, Karolyi and Stulz (2007). Developed market studies using this approach include Aggarwal et al. (2009).

or random effects (RE) results differ from cross-sectional or pooled OLS results. We also discuss conduct and discuss extensive sensitivity tests. We focus here on results for an overall governance index, largely for space reasons. In a companion article, we apply the data and methods developed here to study the extent to which particular subindices or governance elements predict firm market value, for which firms, in which countries (Black et al., 2013). We find that disclosure is consistently valuable across countries, board structure appears to matter in some countries, but little else about governance has a consistent effect.

We seek here to find a “middle way” between single-country studies, from which it is hard to generalize; and “massively multicountry” studies, which to date have been purely cross-sectional and also face severe data and construct validity issues. We hope that the methods developed here for cautiously generalizing across a number of countries (but not too many) will provide a way forward.³

This paper proceeds as follows. Section 2 describes our country-level governance indices. Section 3 develops our methodology. Section 4 presents results for individual countries. Section 5 presents pooled cross-country results. Section 6 concludes. We skip the usual literature review, and refer readers to the recent review by one of us (Claessens and Yurtoglu, 2013), and the briefer review in Black, de Carvalho and Gorga (2012).

2. Samples, Governance Surveys, and Indices

To build governance indices, we rely on private surveys in Brazil (2004, 2006, 2009); India (2006, 2007, 2012), Korea (1998-2004), public data (but extensive hand collection) in Turkey (2006-2011), and a mix of public and private data in Russia (1999-2005).⁴ We exclude state-controlled firms, subsidiaries of foreign companies, and banks.

2.1 Brazil as Illustrative Example: Governance Survey

³ This research complements our studies of individual countries. At the risk of an annoying amount of self-citation: In Brazil, see Black, de Carvalho and Gorga (2010, 2012); Black, de Carvalho and Sampaio (2012), de Carvalho and Pennacchi (2012). In India, see Balasubramanian, Black and Khanna (2010) Black and Khanna (2007); Dharmapala and Khanna (2013). In Korea, see Black, Jang and Kim (2006a); Black and Kim (2012); Black, Kim, Jang and Park (2013). In Russia, see Black (2001), Black, Love and Rachinsky (2006). In Turkey, see Ararat, Orbay, and Yurtoglu (2010); Ararat, Black and Yurtoglu (2013).

⁴ The Brazil, India, and Korea surveys are available on request. Russia is different from the other four countries in a number of ways. We rely on six different privately created governance indices, available for different firms at different times, rather than building our own index. Russia also has weaker data for control variables. Statements in this paper about regularities across countries include Russia only to the extent that the underlying data is available. Our challenges with Russia underscore the general theme of this paper about the challenges in obtaining data on governance across countries.

To illustrate our approach, we summarize here our Brazil sample, data collection, and governance index. An expanded working paper version of this article provides similar information for other countries (Black et al., 2013b). Our Brazil governance index is based primarily on extensive survey distributed in 2005, 2007, and 2009 to all firms listed on Bovespa (2005 Brazil CG Survey), roughly covering corporate governance practices for 2004, 2006, and 2009. We designed the survey to be similar, where feasible, to the India and Korea surveys, with the goal of developing governance elements and subindices that were similar across countries, to the extent feasible. We discuss below the country-specific factors which made that effort only partly successful. We obtained support for our surveys from Bovespa (the principal Brazilian stock exchange), CVM (Comissao de Valores Mobiliarios, the Brazilian securities regulator), and IBGC (a Brazilian corporate governance organization). We followed up repeatedly with each firm to encourage them to respond. We also followed up with individual firms that responded to the survey to obtain responses to survey questions that were initially left blank or for which the responses were unclear. Table 1 summarizes the replies. We obtain sufficient information from at least one survey to both build the governance index and compute Tobin's q and most control variables for 142 of 254 sample-eligible firms (56%), representing 72% of the market cap of eligible firms. Response rates are somewhat lower for individual years. Sample selection bias is thus a concern, for which we have no ready solution. Firm fixed effects will reduce this concern, but only 68 firms answered two or more surveys. This limits the effective fixed effects sample size.⁵ We supplement the surveys with information from the CVM website, firm charters, and firm annual reports.⁶

2.2. Brazil Corporate Governance Index and Subindices

Table 2 lists the subindices and their elements for Brazil, and also India, Korea, and Turkey. Table 2 also indicates which elements are non-public (available from our surveys). For each element used in one country, it indicates whether the element is “available” in the other countries (we have data, or could obtain it without great difficulty) or “feasible” (we could compute it with substantial additional effort, usually to hand-collect data from company annual reports). We treat an element as “useful” if: (i) it is often believed to correspond to good governance (sometimes with empirical support, but more often

⁵ India and Russia pose similar concerns with sample selection bias and a highly unbalanced panel. We come much closer to complete coverage of public firms in Korea and Turkey. See expanded working paper for details.

⁶ We also obtain data on firms' market capitalization and listing level from Bovespa, at www.bovespa.com.br/principal.asp; financial data from the Economatica database, at www.economatica.com; basic company information from annual reports, available from InfoInvest at www.infoinvest.com.br; and information on cross-listing from databases maintained by Bank of New York, at www.adrbny.com, Citibank, at www.citissb.com/adr/www/brokers/index.htm, CVM, at www.cvm.gov.br, Deutsche Bank, at www.adr.db.com, and JP Morgan, at www.adr.com.

not); (ii) we have reasonably complete data on it; (iii) there is reasonable variation across firms; and (iv) the element is sufficiently different from another element to justify inclusion.

We describe here our Brazil Corporate Governance Index (*BCGI*) and some of its unique features. *BCGI* is composed of six subindices, which in turn reflect 41 “useful” firm attributes. The index does not include elements required by Brazilian law, for which there will little variation across firms. 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.

Brazil Board Structure Subindex (7 elements). Board independence is seen as a core element of corporate governance (e.g., OECD, 2004; Dahya, Dimitrov and McConnell, 2008). An audit committee, staffed principally or entirely by independent directors, can help to ensure the integrity of financial reporting (e.g., Klein, 2002). In Brazil, the fiscal board plays a role in oversight of financial reporting similar to an audit committee, and often substitutes for the audit committee, so our governance index considers this institution as well.⁷

Brazil Board Procedure Subindex (6 elements). Assessments of board procedures are a common component of broad governance indices. Their effect on firm value remains an open question. A firm’s internal procedures are a third common aspect of corporate governance. Our index assesses whether a board meets at least four times per year, whether it regularly evaluates the CEO and other executives, whether board members receive materials in advance of board meetings, and whether the firm has a bylaw governing the board and a code of ethics.

Brazil Disclosure Subindex (11 elements). Prior research finds that disclosure is associated with higher firm market value (e.g., Durnev and Kim, 2005). We identify 11 usable disclosure elements. The elements include, among other things, whether the firm prepares financial statements that meet international accounting standards; prepares English language financial statements; provides financial disclosures, such as a statement of cash flows, that are common in other countries but not required in Brazil; posts financial statements on a company web site; discloses major shareholders; and discloses related party transactions (RPTs).⁸

⁷ The fiscal board is elected by shareholders and must include a representative chosen by minority shareholders. The members of the fiscal board report individually at the annual shareholder meeting on whether they approve the company’s financial statements. For Brazilian companies that cross-list in the U.S., which are required to have an audit committee under the Sarbanes-Oxley law, the U.S. Securities and Exchange Commission treats the fiscal board as an acceptable substitute.

⁸ For this and some other elements, it is unclear which subindex to best assign them to. For example, is disclosure of RPTs best assigned to Disclosure Subindex or to RPT Subindex? We use our own (debatable) judgment.

Brazil Ownership Structure Subindex (5 elements). A “wedge” between cash flow rights and voting rights can provide incentives for self-dealing, and predicts lower firm value (Claessens, Djankov, Fan, and Lang, 2002). Many Brazilian firms create such a wedge by using dual-class structures, with insiders holding a majority of the voting common shares and outsiders holding primarily non-voting, but otherwise common-equivalent preferred shares. Ownership structure subindex includes the fraction of nonvoting shares; the largest shareholder’s fractional ownership of voting shares; the wedge between this person’s voting and economic rights; whether the control group is small (and hence more cohesive); and whether there are large outside blockholders who can monitor the controller.

Brazil RPT Subindex (5 elements): Related party transactions are a core governance concern in many emerging markets (e.g., Bae, Kang and Kim, 2002; Atanasov et al., 2010). We extract from the survey and firm charters four elements relating to the existence of related party transactions and approval procedures for these transactions. If the firm’s charter forbids RPTs, the firm receives a maximum score of 5. If RPTs are not forbidden but firm does not engage in them, it receives a score of 4. If firm engages in RPTs, it scores 03 depending on the procedure for approving RPTs (board, non-conflicted directors, or non-conflicted shareholders).

Brazil Shareholder Rights Subindex (7 elements): We extract from the survey seven elements related to minority shareholder rights: takeout rights on a sale of control; freezeout rights (above the legal minimum); shareholder rights for election of directors; arbitration of disputes with shareholders; preemptive rights; and 25% minimum free float.

Computing and Combining Subindices. Within each subindex, we give equal weight to each element. Thus, to compute Brazil Disclosure Subindex, we sum the 12 elements. If an element value is missing, we use the firm’s average score for the nonmissing values to compute each subindex.⁹ We reweight so each subindex runs from 0~100. *BCGI* score is an average of the subindex scores. *BCGI* values range from 19.1 to 91.5, with a mean of 62.1. For regressions, we normalize each subindex to mean 0, $\sigma = 1$, thus giving each roughly equal weight. We then sum the normalized subindices, and normalize the sum; *BCGI* is thus a renormalized sum of normalized subindices.

2.3. Other Country Governance Indices

India. In India, similar to Brazil, we rely on our own survey as a principal source of governance data. We conduct surveys in 2006, 2007, and 2012. India has stronger minimum rules than Brazil; thus a number of Brazil governance elements are not meaningful in India. We build an *India Corporate*

⁹ Brazil RPT Subindex is an exception; we discuss its construction above.

Governance Index (ICGI), comprised of 49 elements, divided into subindices for Board Structure (6 elements); Board Procedure (14 elements); Disclosure (13 elements); RPTs (11 elements); and Shareholder Rights (5 elements). We cannot construct a meaningful Ownership Structure Subindex because India has a one share, one vote rule, and few pyramids or other sources of disparity between economic and voting ownership. We tried to use similar elements in Brazil and India to the extent feasible. Nonetheless, the two indices have only 14 common elements. *ICGI* values range from 24.6 to 86.9, with a mean of 59.2.

Korea. We have Korean governance data from 1998-2004. For 2001-2004, we rely on a survey of all firms listed on the Korea Stock Exchange conducted by the Korea Corporate Governance Service (KCGS). This has the advantage of providing largely complete coverage of listed firms, and the disadvantage that KCGS changes their survey several times, which reduces the number of elements for which we have consistent time-series data. We hand collect data, and in some cases extrapolate, to extend the index back to 1998 (see Black and Kim, 2012, for details). We build a *Korea Corporate Governance Index (KCGI)*, comprised of 30 elements, divided into subindices for Board Structure (7 elements); Board Procedure (16 elements); Disclosure (3 elements); Ownership Structure (1 element); and Shareholder Rights (3 elements). We lack enough data to construct a meaningful RPT Subindex.¹⁰ *KCGI* values range from 7.0 to 98.8, with a mean of 34.9.

Turkey. Turkish governance data are from 2006-2011. The governance elements are hand-collected from the corporate governance compliance reports, annual reports, articles of association, the footnotes to the financial statements and from the websites of the listed companies. In some cases, we extra- or intrapolate missing values of governance elements. We build a *Turkey Corporate Governance Index (TCGI)*, comprised of 45 elements, divided into subindices for Board Structure (7 elements); Board Procedure (5 elements); Disclosure (21 elements); Ownership Structure (4 elements); and Shareholder Rights (8 elements). We lack enough data to construct a meaningful RPT Subindex.¹¹ *TCGI* values range from 9.4 to 74.5, with a mean of 42.0, but less year-to-year variation than in other countries, which limits the power of firm fixed effects regressions.

In India, Korea, and Turkey, we construct subindices and an overall country index in the same manner as for Brazil, as the renormalized sum of normalized subindices.

Russia. In Russia, we rely not on a single index that we build, but instead on six separate indices, created by others, covering somewhat different firms at different times over 1999-2005. Because we do

¹⁰ We include one RPT-related element (RPTs require board approval) in the Korea Shareholder Rights Subindex.

¹¹ We include two RPT-related elements in the Turkey Shareholder Rights Subindex.

not control how the indices are built, and for some do not have element by element data, we cannot build a set of subindices. We instead normalize each index and use the normalized indices to build an overall Russia Corporate Governance Index (RCGI). Russia also has more limited control variables. We include it in reporting results below only where feasible.

Table 3 provides summary statistics for each country's non-normalized index. The within-firm scores in Brazil, India, and Korea show substantial variation across time; the Turkey scores somewhat less.¹²

2.4. Comparison to Developed Markets

Our elements and subindices reflect measures that would likely be important in emerging markets. These differ from elements that would be appropriate in developed markets. For example, if we compare the 41 elements of *BCGI* to the 24 elements in the Gompers, Ishii and Metrick (2003) "GIM" governance index, there are only three common elements: classified board of directors, dual-class common stock, and take-out rights. Similar, only four elements of *BCGI* are among the 44 elements of the Institutional Shareholder Services index, studied by Aggarwal et al. (2009, Table 1): separate CEO and chair, majority of outside directors, no classified board of directors, and no dual-class common stock. Some of this non-overlap reflects the limited scope of the GIM and ISS indices,¹³ but most reflects the difference between a US-centric index and one that would be appropriate in an emerging market.

2.5. Commonalities and Differences across Countries

While we seek to maintain common subindices and elements where feasible, we adapt our governance index both to the data available in each country and to country-specific institutions. For example, 18 of the 41 Brazil elements are unique to Brazil. In each of the other four countries, the data is not available, or the practice does not exist or lacks meaningful variation.

Table 2 is mind-numbingly complex. Even more complexity is buried in dozens of footnotes to an offline version of this table, which document variations in how elements are coded in different countries and in different years.¹⁴ Still more complexity lurks in the different meanings of the same

¹² The expanded working paper version of this article provides year-by-year data, as well as correlation tables for the subindices with each other, the overall index, and a "reduced index" built from the other subindices.

¹³ For criticism of these indices, see Bhagat, Bolton and Romano (2008); Daines, Gow and Larcker (2010).

¹⁴ For example, in some countries, we can measure whether a director is "outside"; in others, we can measure whether a director is "independent" (defined somewhat differently in each country). In Korea, we know whether the audit committee has 2/3 outside directors; in India we know whether it has a majority of outside directors. We ignore these and other small differences in meaning; exercising judgment as to what is "small".

variable in different countries,¹⁵ and in our judgments about how to define elements.¹⁶ In that complexity lies a central message of this article. We did our best to build broad indices, covering similar aspects of governance, in each country. At the subindex, we hope that we more-or-less succeeded. At the level of individual elements, we did not. The elements that are useful across countries differ radically. One measure of those differences: Table 2 contains 121 elements used in at least one country. Of these, 83 are used in only one country; 38 in two or more countries; 8 in three or more, and none are used in all four countries.

Another measure of the differences: Suppose that we sought to build a “Public Index”, using elements that are publicly available in all five countries. That index would have only four elements: one board structure element (audit committee exists) and three disclosure elements (firm discloses 5% holders; firm has English language financials; financial statements include statement of cash flows). There would be no elements for the board procedure, ownership, shareholder rights, and RPT subindices.

Indeed, there is even less to the Public Index than the little that meets the eye. Consider India. Audit committees are required; all financials are in English and include a statement of cash flows. This leaves *one* useful element – whether the firm discloses 5% holders. Even there, usefulness is limited, since “promoter” ownership is disclosed.

Can educated guessing help? We don’t think so. Consider the Dahya, Dimitrov and McConnell (2008) board independence study. In countries where they lack data on which directors are independent, they infer independence based on where a director is employed by the firm or has the same family name as the controlling family. For Brazil in 2002, they estimate that 57% of directors in their sample firms were independent. We find that the mean percentage of outside directors in 2004 is 23%. Our samples are different, but the difference in percentages is far too large to be explained in this way.¹⁷ In our view, their estimate provides mostly noise, not signal.

¹⁵ For example, the element “CEO is NOT chairman of the board” has a very different meaning for a stand-alone firm, where the implication is that the chair is an outside director; than for a firm which belongs to a business group, where the chairman often represents the group.

¹⁶ In Brazil, for example, a fiscal board can be “permanent” (established in the firm’s charter). If not, it can still be called for a particular year by request of 10% of the shareholders. We coded a firm as “having” a fiscal board if it was either permanent or had been called in four or five of the last five years.

¹⁷ Bovespa has multiple listing levels, with different corporate governance standards. The highest level, Novo Mercado, requires only 20% independent directors.

2.6. Can We Build An Index with Common Elements?

We can improve on the Public Index by using private survey data, at the cost of building an index that cannot be replicated in a massively multicountry study. Suppose we ask: which elements are available during our sample period in Brazil, India, Korea, and Turkey, and useful (have meaningful variation) in at least two countries? We use these elements to build a “Common-2 Index.” We can similarly build a “Common-3” index that uses elements useful in at least three of the four countries. Table 2 indicates the elements of the Public, Common-2, and Common-3 indices.

The Common-2 index includes 13 elements. Of these, 10 are within board structure (5 elements), board procedure (2 elements), and disclosure (3 elements) subindices. The ownership structure, shareholder rights, and RPT subindices have only one element each, and only some of these elements are meaningful in each country.¹⁸ The Common-3 index would include 11 elements, 4 within board structure, 2 within board procedure, 3 within disclosure, one each for ownership structure and RPTs, and none for shareholder rights. We did not try to build a Common-4 index – it would have had no elements.

We discuss the predictive value of the Public, Common-2, and Common-3 indices below. But these indices are thin at best. If we found economic or statistical significance for such an index, we could have limited confidence that this significance came from the measured elements, rather than unmeasured elements which were correlated with the measured elements. Similarly, we would have limited confidence that significance came from the main measured subindices (board structure, board procedure, disclosure), rather than from an association between these subindices and other, mostly unmeasured subindices. Country-specific institutions, such as the Brazilian fiscal board, would not be measured at all.

3. Methodology: Construct Validity and Endogeneity Concerns

3.1. Embracing Construct Validity

We adopt here a different approach. We abandon the pretense that a common index can capture what’s important about corporate governance in each country. In fact, as we’ll see below, the common-2 index doesn’t predict much. We posit instead that there is an underlying, unobserved concept of “overall corporate governance”; that overall governance can be usefully divided into unobserved “buckets” of board structure, board procedure, disclosure, ownership structure, minority shareholder rights, and control of RPTs; and that each of these buckets is composed of unobserved “aspects”, such as *true* effectiveness

¹⁸ With substantial data collection effort, we could add three additional “feasible” elements to the common-2 index. All three would be within board structure and board procedure; thus, this would not help with the other subindices. Some additional disclosure items would be available today, but we don’t have them for the time periods covered by our study.

of the board of directors; the audit committee or a local substitute, and so on. We conceive of the goal of measuring corporate governance as developing measurable *constructs* – at the element, subindex, and overall index levels – that map decently onto unobserved true governance. We are measuring constructs (elements) within larger constructs (subindices) within a larger construct (overall country index). The optimal mapping from constructs to unobservable underlying governance will depend on local rules and institutions. The unobserved aspects or buckets will surely differ across countries; thus, the elements and subindices we construct to capture them must vary as well.

Note too that we are interested in the causal question: How much will a within-country *change* in governance change Tobin’s q , or another outcome variable? The *levels* against which changes occur will vary greatly across countries, reflecting a mix of local legal rules (say, requirements for board independence or particular disclosures) and common practices. Only governance elements with meaningful variation are useful in answering that causal question. Those elements will also vary substantially across countries.

How will we know whether we have chosen sensible constructs – whether, say, the Brazil disclosure construct is measuring something similar to the India disclosure construct? We can’t. A null result could mean either that governance doesn’t affect Tobin’s q or that we have not measured governance correctly. The most we can hope for is to build similar subindices, roll them up to similar overall indices, look for commonalities, and cautiously interpret what we find.¹⁹

3.2. Regression Specifications

So onward, to what we do and what we find. Our principal dependent variable is the natural logarithm of Tobin’s q ($\ln(\text{Tobin’s } q)$). Tobin’s q is a standard dependent variable in governance-to-value studies. Other things equal, if governance affects firm market value, this should be reflected in Tobin’s q . We take logs to reduce the influence of high- q outlier firms. In our base specification, we also exclude outliers, for which a studentized residual from regressing the dependent variable (here, $\ln(q)$) on overall *CGI* (year-by-year for panel regressions) $> |1.96|$. Within each country, we then regress $\ln(q)$ on our governance index (*CGI*) and a vector of control variables, denoted \mathbf{X}_i . We use four different econometric models. The first model is purely cross-sectional, using the first year with governance data for Brazil (2004), India (2006), and Turkey (2006), 2001 (first year after major reforms) for Korea, and 2003 (year with most observations) for Russia.

¹⁹ A further concern is that firm market value is based on trading prices for noncontrolling shares, and does not include private benefits of control. Governance could affect market value either by affecting total firm value or the division of value between insiders and outsiders. We cannot distinguish between these two broad channels.

$$\ln Q_i = \beta_0 + \beta_1 * CGI_i + \beta_2 * \mathbf{X}_i + \varepsilon_i \quad \text{Model 1 (cross-sectional OLS)}$$

Many single-country studies, and all of the massively multicountry studies, use this or a similar model to examine the effect of overall corporate governance, or specific aspects such as board structure, on firm market value (e.g., Dahya, Dimitrov and McConnell, 2008; Durnev and Kim, 2005; Klapper and Love, 2004). This is a weak specification because one cannot control for omitted firm characteristics that predict both CGI and Tobin's q . The massively multicountry emerging market studies use this specification because they lack time series data on governance.

One goal of this article is to improve on the pure cross-sectional specification by developing time series data, at least in our five countries. We use this time series data in three specifications. All use standard errors with firm clusters and an unbalanced panel. The weakest is a pooled OLS specification in which we add year dummies and time varying governance and control variables to Model 1:

$$\ln Q_{i,t} = \beta_0 + \beta_1 * CGI_{i,t} + \beta_2 * \mathbf{X}_{i,t} + g_t + \varepsilon_{i,t} \quad \text{Model 2 (pooled OLS)}$$

An intermediate, random effects specification adds firm random effects to Model 2. The fixed effects specification is similar to Model 3, except the firm effects are fixed instead of random.²⁰

$$\ln Q_{i,t} = \beta_0 + \beta_1 * CGI_{i,t} + \beta_2 * \mathbf{X}_{i,t} + f_i + g_t + \varepsilon_{i,t} \quad \text{Model 3 (RE and FE)}$$

The fixed effects model provides unbiased estimates even if the firm effects are correlated with other variables, but imposes a substantial loss of sample size. In Brazil, of the 159 firms in our dataset, only 73 appear at least twice; of 399 Indian firms, only 186 appear at least twice. Moreover, many aspects of governance are sticky. With fixed effects, we can study only aspects with substantial within-firm time variation. Thus, both RE and FE are useful specifications, with different strengths.

We also run models in which we replace country CGI with each subindex included separately. If we index the subindices by j and denote them SUB_j , the RE/FE model becomes:

$$\ln Q_{i,t} = \beta_0 + \sum_j \beta_{1j} * SUB_{j,i,t} + \beta_2 * \mathbf{X}_{i,t} + f_i + g_t + \varepsilon_{i,t} \quad \text{Model 3-sub (RE and FE)}$$

And similarly for the OLS models 1 and 2. We discuss in Part 5 additional specifications which pool results across countries.

3.3. Control Variables

Many firm characteristics are potentially associated with both Tobin's q and governance. We therefore include an extensive set of control variables, within the limits of each country's financial

²⁰ In Russia, we use firm-index fixed or random effects.

reporting, to reduce omitted variable bias (OVB). Table 4 defines our principal control variables, indicates which is used in each country and in regressions which use a common set of control variables, and how each is winsorized (in some specifications). We work hard to limit loss of sample size due to missing data on control variables through a combination of how we define control variables and, in some cases, imputation from an adjacent year.²¹

Our base specification uses the following control variables. *Firm size*: we use $\ln(\text{assets})$ to control for the effect of firm size on Tobin's q ; *Firm age*: we include $\ln(\text{years listed} + 1)$ to proxy for firm age, because younger firms are likely to be faster-growing and more intangible asset-intensive, which can lead to higher Tobin's q ; *Leverage*: We include book leverage (measured as total liabilities/total assets). Leverage can influence Tobin's q by providing tax benefits and reducing free cash flow problems; it is also mechanically related to Tobin's q , since both variables use similar denominators. *Growth prospects and profitability*: Tobin's q is related to a firm's growth prospects and current profitability. We control for growth prospects using geometric sales growth over the last 3 years (or shorter period if 3 years of data are not available). We control for profitability using both net income/assets and *EBIT*/sales. *Capital intensity and tangible versus intangible assets*: Asset tangibility can both predict Tobin's q and affect what level and type of governance a firm needs. We control for overall capital intensity using PPE/sales, recent capital spending using capex/PPE, and intangible assets using R&D/sales and advertising/sales. *Liquidity*: we include annual share turnover (traded shares/total shares) and fraction of freely trading shares (free float) as measures of share liquidity, since share prices may be higher for firms with more liquid shares. *Ownership*: we control for fractional ownership by the largest shareholder (inside ownership), which affects insiders' incentives; by foreign investors (who may bring different monitoring skills and attitudes toward governance), and the state (since the state's incentives as owner may differ from other shareholders). *Exposure to competition*: Product market competition can potentially substitute for governance in imposing market discipline on managers. We control for two aspects of

²¹ Some examples: We generally define book 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 whatever reason. In Korea, state ownership is missing for 2004; we imputed values from 2003. In India, some firm-years have negative sales; we dropped these observations. Firm-years with zero sales exist in other countries, but drop out from regressions because ratios with sales in the denominator cannot be computed. In India, we use $\ln(\text{years since incorporation})$ instead of $\ln(\text{years listed} + 1)$, because year of incorporation is available but year of listing is not. For India for 2012, we must look backwards in time to compute control variables because the most recent available data is for fiscal 2010, ending March 31, 2011. The Russia controls are more limited than those in other countries. We exclude Russia in specifications using common control variables. Details on variable definitions and summary statistics are available in the expanded working paper version.

competition: exports/sales (since export markets are likely to be competitive) and domestic market share in the firm's principal industry.

We also include several variables which drop out with firm fixed effects, but are relevant for other specifications. *Industry*: Since both governance and Tobin's q may reflect industry factors, we include industry dummies, defined separately in each country.²² *US cross-listing dummy*, since cross-listing may enhance liquidity and foreign investor interest, and proxy for otherwise unobserved growth opportunities. *MSCI dummy* for membership in the Morgan Stanley Capital International index, which may also proxy for liquidity and foreign investor interest. *Business group dummy*, because firms that belong to business groups may behave differently and have different financing and other opportunities than stand-alone firms.

3.4. Endogeneity

Our use of broad, country-specific governance indices, panel data methods, and extensive control variables strengthen this study, relative to the prior literature. At the same time, except for Korea, we have no exogenous shock to governance. 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, 2006; Black and Kim, 2012). Thus, the different flavors of endogeneity are important concerns.

We can say a bit about how likely our results are to involve causation. Consider first reverse causation, in which firm value predicts governance. To limit reverse causation, we look forward in time by measuring governance in the first part of a year and Tobin's q at year-end. Black and Kim (2012) find limited evidence of reverse causation in Korea. Consider next the optimal differences flavor of endogeneity, with firms choosing their governance to meet firm-specific needs, are more likely to be serious concerns. Black, Jang and Kim (2006b) report that firm characteristics, other than firm size, weakly predict Korean firms' governance choices; and Balasubramanian; Black and Khanna (2010) find a weak association in India between firm characteristics and governance. These results suggest that the optimal differences flavor of endogeneity may be a limited concern. The most important endogeneity concern is likely to be omitted variables, which are associated with both governance and Tobin's q . Here, control variables and firm fixed effects help, but only so much.

²² We use 9 dummies for Brazil, 11 dummies for India, 4-digit Korean SIC codes for Korea, and 2-digit US-equivalent SIC codes for Turkey, and for "common controls" regressions. The expanded working paper provides details on how firms are distributed across industries.

4. Country-Level Regression Results

4.1. Cross-Sectional and Pooled OLS

We begin in Table 5 by examining the association between country governance and Tobin's q , across countries and regression models. Consider first Panel 1, which presents pure cross-sectional OLS results, using only one year for each country.²³ We report the coefficient on country CGI from model 1, and suppress the coefficients on the control variables. In each country, higher CGI predicts higher Tobin's q , by economically meaningful amounts. In Brazil, for example, the 0.213 coefficient implies that a one-standard-deviation increase in $BCGI$ predicts an 0.213 (24%) increase in $\ln(\text{Tobin's } q)$.

Yet the apparent consistency is deceiving. Consider India, where we have governance data for 2006, 2007, and 2012. We find a significant 0.107 ($t = 2.09$) coefficient for 2006. But the coefficient for 2007 is 0.000 and in 2012 is -0.058 (both insignificant). In Brazil, the coefficient on $BCGI$ is significant in 2004 at 0.150 ($t = 3.10$), but insignificant in 2006 (coeff. = 0.074; $t = 1.22$) and 2009 (coeff. = 0.063, $t = 1.43$). In Turkey, the coefficient on $TCGI$ is significant and positive in 2006 and 2008; marginally significant and positive in 2007 and 2010, and insignificant in 2009 and 2011 (indeed negative in 2009). Subindex level results (presented in our companion paper) provide further reason for concern. The only significant subindices in a regression that includes each subindex separately are board structure (Brazil and Korea) disclosure (Korea and Turkey), RPTs (Brazil), and shareholder rights (Turkey). We found the *opposite* (negative) sign on board structure for Brazil in Black, de Carvalho and Gorga (2012), using the same governance data and a very similar specification.²⁴ For Brazil, the sign on RPT Subindex flips once we move to a pooled sample; for Turkey, the results for Shareholder Rights Subindex survive with random effects, but vanish with fixed effects. The discouraging conclusion: Single-year cross-sectional regressions are not a reliable basis for inferring much of anything about corporate governance in emerging markets.

In Panel 2, we present pooled *OLS* results. Pooled OLS is still a weak specification because it ignores firm effects; we present it largely for comparison to the even weaker cross-sectional results in Panel A and the firm random and fixed effects results in Panels C and D. The coefficients on country CGI become smaller for all countries except Russia, and become insignificant in India. The t -statistics rise in several countries due to larger sample size.

²³ Panel A uses the first available year in Brazil, India, and Turkey. In Korea, we use 2001 (just after the large firm reforms come into effect). In Russia, we use 2003, where we have the most complete data.

²⁴ We discuss this puzzling result (opposite sign from a nearly equivalent specification) in our companion paper. A major reason: When firms restate prior year financial results, the Economatica database revises the prior year numbers. Black, de Carvalho and Gorga (2012) use the original numbers; here we use the revised numbers.

4.2. Firm Random and Fixed Effects

We turn next in Panel 3 to firm random effects. The country CGI indices are positive and significant predictors of Tobin's q in all countries. A Breusch-Pagan test strongly rejects the absence of firm effects, and implies that pooled OLS will be biased. At the same time, a Hausman test strongly rejects the equivalence of RE and FE models. Thus, if the fixed effects specification is correct, RE results will also be biased. The median "lambda", indicating whether RE results are closer to pooled OLS ($\lambda = 0$) or to FE ($\lambda = 1$) is relatively low for Brazil at 0.33 and India at 0.30, but higher for Korea and Turkey, where we have more data years and a more balanced panel, at 0.61 in Korea and 0.66 in Turkey.

The Hausman test results suggest that both pooled OLS and RE results are likely to be biased. But in our experience, RE coefficients are often in between pooled OLS and FE; this is the case in Table 5 for all countries except Brazil (where we lose many firms with fixed effects). If so, and if λ is close to 1, it seems likely that RE will be less biased than pooled OLS. This is an opinion, informed by experience, not a theorem.²⁵

In Panel 4, with fixed effects, the results generally weaken, with drops in coefficients in all countries except India and drops in t -statistics in all countries. They remain significant except in Brazil. This weakening likely reflects a combination of bias in RE coefficients, loss of sample size, and limited within-firm variation; there is no easy way to assess the relative contribution of each factor.

4.3. Robustness to Choice of Control Variables

In Table 6, we present robustness checks for Brazil, India, Korea, and Turkey using different specifications. The specifications are the same as in Table 5, except as indicated. For each country, we present both RE and FE results. Panel 1 reproduces our base specification from Table 5. In Panels 2-5 we vary how we handle control variables. In Panel 2, we replace country-specific control variables with a common set of controls – this principally means dropping several variables that we lack in Brazil. The India and Korea results strengthen, suggesting the importance of control variables. In Panel 3, we winsorize the control variables. This has little impact except in Korea, where the coefficients on KCGI drop by around 20%. In Panel 4, we use a limited set of control variables, similar to those used in massively multicountry studies.²⁶ Results are mostly similar to Panel 2. In Turkey, the FE results

²⁵ We are aware of no simulation or other research that assesses the likely relative bias of pooled OLS versus firm random effects in situations where firm fixed effects results may be unreliable.

²⁶ The controls are $\ln(\text{assets})$; $\ln(\text{years listed} + 1)$; 3-year sales growth, PPE/sales, R&D/sales, exports/sales; 2-digit US SIC industry dummies, and cross-listing dummy. Compare the controls in Klapper and Love (2004); Durnev and Kim (2005); Doidge, Karolyi and Stulz (2007) Dahya, Dimitrov and McConnell (2008).

strengthen, going from barely significant (coeff. = .054; $t = 2.00$) to easily so (coeff. = 0.070; $t = 2.40$). Finally, in Panel 5, we drop net income/assets. In contrast, our main specification uses both EBIT/sales and net income/assets to control for profitability. The coefficients on *CGI* are similar.

We conclude that coefficients on *CGI* can be somewhat sensitive to choice of control variables, and whether one winsorizes them. At the same time, the coefficient on *CGI* does not vary greatly. The changes across Panels 1-5 are largest in Korea (FE coefficients range from [0.44, 0.54] depending on control variables) and Turkey (range from [0.051, 0.070]). The range of estimated coefficients remains reasonably stable if we vary the control variables in other ways. This is, on the whole, good news for concerns about *OVB* due to unobserved firm characteristics. The relative stability of the *CGI* estimates suggests that if one uses panel data with a reasonable number of time periods, firm fixed or random effects, and the best available set of firm-level controls, a strong result for *CGI* (say a t -statistic of 3 or higher) is likely to be robust to adding still more controls, if we could observe them.

At the same time, there is clear need for governance researchers to use a strong set of control variables and report the sensitivity of results to changes in those variables. Currently, many papers use limited controls and simply list the controls and report results; some also report univariate results with no controls. Greater reporting richness could be valuable. And a caution: the choice of control variables matters much more in cross-sectional or pooled *OLS* than with RE or FE, as one might expect. Thus, the already weak results from these specifications are further weakened in a study with limited controls.²⁷

4.4. Robustness to Choice of Dependent Variable

In Panels 6-9, we vary the specification of Tobin's q as the dependent variable. In Panel 6, instead of excluding outliers, we winsorize $\ln(q)$. The results strengthen in Turkey but weaken in other countries. In India, we lose significance for both RE and FE; in Brazil, the RE results are now only marginally significant. In Panel 7, we neither winsorize nor exclude outliers. Results are slightly weaker than in Panel 6. In Panel 8, we use non-logged Tobin's q as the dependent variable, but exclude outliers. The results weaken dramatically in Turkey – the coefficients more than double, but standard errors more than quadruple and the coefficients become insignificant in both RE and FE. Standard errors also become much larger in India, and somewhat larger in Brazil. The overall message: How one defines the dependent variable and handles outliers can have a major impact on results.

In Panel 9, we switch to $\ln(\text{marker}/\text{book})$ as dependent variable, and exclude outliers.

[*discussion of results to come]

²⁷ For example, in Korea, the increase in the coefficient on *KCGI* using limited controls, relative to the base specifications is +.0031 for FE (6%), but grows to +.0060 for RE (11%); and .0214 for pooled OLS (38%).

5. Pooled Regressions across Countries

5.1. Pooled Index Results

We assess in Table 7 what results we would get if we treated our distinct country indices *as if* they capture the same underlying construct, combine CGI scores across countries into a “Pooled CGI” index, and use this index to predict Tobin’s q for a sample which includes all four countries. We use the same four specifications as in Table 5: cross-sectional OLS using selected years for each country; pooled OLS; RE; and FE. We use winsorized control variables and, of necessity, only control variables available in all countries. In cross-sectional OLS, we include country fixed effects; in the other specifications, we use year*country fixed effects, thus allowing the mean Tobin’s q to vary within each country and each sample year. In OLS and FE specifications, we weight results from each country by 1/(number of firms), thus giving roughly equal weight to each country. Weights are not available for RE. The RE/FE specification is presented below as Model 4-cc (for cross-country; the other specifications in Table 7 are similar. Let c index countries and d_c be country dummies. Then, suppressing the FE weights:

$$\ln Q_{c,i,t} = \beta_0 + \beta_1 * CGI_{c,i,t} + \beta_2 * \mathbf{X}_{c,i,t} + f_i + (g_t * d_c) + \varepsilon_{c,i,t} \quad \text{Model 3-cc}$$

In column (1), Pooled CGI is strongly significant, with similar coefficients, across our four models. This suggests that our country indices are capturing *something* about governance that affects firm market value. This, in turn, might justify combining scores from country-CGI indices that are broadly similar at the subindex level, but quite different at the element level.

With regard to the choice among models, a Breusch-Pagan test continues to strongly reject the absence of firm effects. Median λ is 0.72, suggesting that RE may be an acceptable specification, albeit unweighted.

5.2. Common-2 and Non-Common CGI Indices

We next build the Common-2 Index, and assess what it predicts. Recall from Section 2.5 that this index uses the 13 elements with data available in all four countries, which were useful in at least two countries. Within each country, we build the index following the same rules as for overall country CGI: Each subindex is an equally weighted average of the elements of the subindex. If a subindex has only one

element, the element and subindex are identical. If a subindex has no elements in a particular country, we drop it.²⁸ Common-2 Index is then the renormalized sum of normalized subindices.

We then return to the country indices, remove elements that are in the Common-2 Index, and use the remaining elements to build subindices, an overall index, following the same procedure as for the country CGIs, and a cross-country index, following the same procedure as for the Pooled Index. We term the multicountry index “Non-Common CGI.”

Table 7, column (2) provides results for the Common-2 Index. It is positive and significant for the simple cross-country OLS regressions (to which, as discussed above, we assign little value). But the Common-2 Index drops sharply in magnitude and becomes insignificant with pooled OLS; drops further but is marginally significant with random effects, and becomes trivially small and insignificant with fixed effects (coeff. = 0.007; $t = 0.38$). Results for the narrower Common-3 are similar. Thus, there is at best weak evidence that the best common index we can build predicts firm market value.

In column (3) we assess the predictive value of the non-common index elements. Non-common CGI is statistically and economically strong across specifications; indeed it takes a larger coefficient and t -statistic than Pooled CGI. The combined results from columns (2) and (3) support our judgment that country-specific aspects of governance are crucial in capturing whether and how corporate governance matters in emerging markets.

We explore the relative power of the Common-2 Index and Non-common CGI in columns (4A) and (4B), by including both in the same regression, otherwise similar to earlier columns. The Non-Common Index remains strong across specifications, especially the more robust RE and FE models. In contrast, the Common-2 Index weakens further. It becomes only marginally significant in cross-sectional OLS, and has an essentially zero coefficient in all pooled models. In effect, once we include the Non-common aspects of governance, the Common-2 Index has no additional predictive power. In effect, it's power when included alone in column (2) is spurious and reflects OVB, where the omitted variable is the rest of country governance, proxied by Non-common CGI. The correlation between Common-2 Index and Non-common Index is 0.36, sufficient to induce significant OVB.

This reinforces a point made in the Introduction. Omitted variable bias that arises from using narrow governance measures can be severe. This concern was an important part of our motive for building broad governance indices and insisting that they be country specific, to better capture what about governance is likely to matter in each country. Our concern was not misplaced.

²⁸ Consider, for example, RPT Subindex. The Common-2 Index includes one element of this subindex, for “RPTs require board approval.” We use this element as the RPT Subindex in Brazil, India, and Korea, where it is meaningful. We drop the RPT Subindex in Turkey, where board approval of RPTs is required.

We reach a similar conclusion about the predictive power of the Common-2 Index in columns (5A) and (5B). Here we include Common-2 Index and Pooled CGI (including both common and non-common elements) together. Pooled CGI remains strong, with coefficients similar to column 1, where it was included alone. The coefficient on Common-2 provides an estimate of the predictive power of the part of Common-2 Index that is orthogonal to Pooled CGI, conditioned on controls. The coefficients in the pooled models are negative, and the RE coefficient is marginally significant. Taken together, the results in columns (4) and (5) provide strong evidence that what matters most about corporate governance is better captured by the non-common, country-specific elements; not the common ones.

In the last row of Table 6, we examine the power of Common-2 Index in each country. This index is significant in Korea with random effects, but insignificant with fixed effects. Coefficients in Brazil, India, and Turkey are small and insignificant coefficient with both RE and FE. In pooled OLS results (not reported), Common-2 Index is again significant only in Korea. This is a further caution sign for a common index: Such results as one finds could be driven by a small number of countries.

5.3. *Revisiting Prior Studies*

With the weak results for the Common-2 Index in mind, we revisit three well-known, massively multicountry studies, which use the common index approach: Klapper and Love (2004); Durnev and Kim (2005); and Dahya, Dimitrov and McConnell (2008). These studies are often seen as providing evidence that firm-level governance predicts higher firm value. For us, this overstates the reliance one should place on these purely cross-sectional studies.²⁹

Klapper and Love (2004) report evidence that the Credit Lyonnais Securities Asia (CLSA) cross-country index for 2001 predicts higher Tobin's q and ROA, with t -values around 2.75. However, the CLSA index includes a number of subjective elements, scored by their analysts. Higher market valuations could easily affect those scores. They have only a few controls ($\ln(\text{sales})$, sales growth, PPE/sales, country dummies, and 1-digit industries).³⁰ Durnev and Kim (2005) use winsorized Tobin's q as their dependent variable. Their firm-level controls are limited ($\ln(\text{sales})$, sales growth, R&D/sales, exports/sales, US cross-listing, consolidated financials); they use country random effects and include

²⁹ Our goal is to assess the robustness of results, not to criticize these articles. All were pioneering efforts when written. Klapper and Love (2004) and Durnev and Kim (2005) are concerned as much with what predicts governance as with whether governance predicts firm market value. Durnev and Kim and Dahya, Dimitrov and McConnell also study the impact of country characteristics; to do so, they need to use country random rather than fixed effects. Moreover, early efforts can take approaches that would be questioned later on; and many papers written a decade use methods that would be seen as suboptimal today.

³⁰ See Khanna, Kogan and Palepu (2006) for further discussion of the CLSA index.

several developed countries in their sample (Australia, Japan, New Zealand, Singapore). They find the CLSA index from 2001 and the S&P Transparency and Disclosure Index from 2000 predict higher Tobin's q , but rather weakly – the CLSA p -value is 0.06 and the S&P p -value is 0.04.

Dahya, Dimitrov and McConnell (2008) study the association between board independence and market value, proxied by raw Tobin's q , for firms with a controlling shareholder. For some countries, they guess which directors are independent; we discuss above why this is problematic. Their control variables are limited ($\ln(\text{sales})$, sales growth, intangible/total assets, share price variance, 1-digit industries, whether a firm participates in two or more 2-digit industries); they use country random effects. Their p -values range from .01 to .05 depending on specification. They mix developed and emerging markets, roughly equally; their results could be coming from either group or both; one cannot tell.

We conclude that our weak results for the Common-2 Index are not inconsistent with these studies. They have somewhat stronger t - and p -values, but much weaker specifications. As we show above, those specifications can strongly affect results.

6. Conclusion

The methodology goal of this article was to highlight, and then make progress in addressing, the methods challenges involved in cross-country assessments of what matters in corporate governance. The core challenges in emerging markets are lack of data and construct validity. We address these by relying heavily on hand-collected data and by building country-specific indices. Important data challenges remain. For example, we build a Disclosure Index in each country, but the number of elements varies from three in Korea to 21 in Turkey. We are unable to build a meaningful RPT Subindex in Korea or in Turkey.

Endogeneity, principally omitted variable bias, is a major concern; we address it by a broad governance index, panel data with firm fixed or random effects and a rich set of control variables. Sensitivity to specification is important and often underexamined; we respond by varying our regression models, control variables, and how we define the dependent variable.

Our substantive goal was to assess, in a cross-country framework, whether firm-level variation in corporate governance predicts firm-level variation in market value. For that goal, the best common index we can build turns out to have negligible predictive power. In contrast, country-specific indices that are tailored to country rules and institutions have substantial predictive power. More tentatively, it may be possible to pool indices, which seek to measure similar underlying constructs in different, country-specific ways, to develop meaningful cross-country governance measures.

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Table 1.
Brazilian sample.

| Number of firms | All public firms | Responding firms | Market cap (US\$ billions) | Capitalization of responding 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 | 1,191 | |
| 2004 & 2009 | 254 | 21 | 1,191 | |
| 2006 & 2009 | 254 | 53 | 1,191 | |
| all 3 surveys | 254 | 17 | 1,191 | |
| at least one survey | 254 | 142 (56%) | 1,191 | 854 (72%) |

Note: 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 indicates respondents that were public in 2009 and were in the dataset in at least one year. All data excludes state-controlled firms, banks, and subsidiaries of foreign companies.

Table 2.

Governance elements in each country and potential common index elements.

| ELEMENTS | BRAZIL | INDIA | KOREA | TURKEY | LABEL | COMMON INDEX-2 |
|--|--------------|--------------|------------|----------|--------|----------------|
| Years | 2004, 06, 09 | 2006, 07, 12 | 1998-2004 | 2006-11 | | |
| Board Structure Subindex | | | | | | |
| ≥ 1 outside director | X (NP) | required | required | X | bs_1 | X |
| ≥ 30% outside directors | X (NP) | required | common | avail | bs_3 | 3 |
| ≥ 50% outside directors | X (NP) | X | X | rare | bs_4 | |
| > 50% outside directors | rare (NP) | X | X | rare | bs_5 | 3 |
| CEO is board member | common (F) | common (F) | common (F) | X | bs_7 | |
| CEO is NOT board chairman | X | X | avail (NP) | X | bs_8 | 3 |
| Board has outside chair or lead director | X | feas (NP) | X | rare | bs_9 | |
| ≥ 50% outside directors or ≥ 1/3 outside directors & <i>and</i> CEO is not chairman | feas (NP) | X | avail | rare | bs_10 | |
| Firm has outside CEO | NA | feas | feas | X | bs_11 | -- |
| Audit committee | X | required | X | required | bs_13 | PUB |
| Audit committee has non-executive chair | NA | feas (NP) | common (F) | X | bs_14 | |
| Audit committee has outside director | avail (NP) | feas (NP) | common (F) | X | bs_17 | F (3) |
| Audit committee has majority of outside directors | rare (NP) | X | X | NA | bs_18 | F (3) |
| Compensation committee | rare (NP) | X | X | NA | bs_21 | |
| Outside director nominating committee | rare (NP) | NA | X | NA | bs_22 | |
| Corporate governance committee | rare (NP) | NA | rare (F) | X | bs_23 | |
| Fiscal board exists | X (NP) | NM | NM | NM | bs_24 | |
| Permanent fiscal board or audit committee has minority shareholder representative | X (NP) | NM | NM | NM | bs_25 | |
| Board Procedure Subindex | | | | | | |
| ≥ 4 board meetings in last year | X (NP) | avail (NP) | X | avail | bp_3 | 3 |
| Average board attendance rate ≥ 80% | common (NP) | X | feas | NA | bp_4 | |
| Firm has system to evaluate CEO | X (NP) | X | NA | NA | bp_5 | |
| Firm has system to evaluate other executives | X (NP) | X | NA | NA | bp_6 | |
| Firm evaluates nonexecutive directors | avail (NP) | X | X (NP) | NA | bp_7 | |
| Firm has succession plan for CEO | avail (NP) | X | NA | NA | bp_8 | |
| Firm has nonexecutive director retire age | NA | X | rare (F) | NA | bp_9 | |
| Directors receive regular board training | NA | X | NA | NA | bp_10 | |
| Nonexecutives-only annual board meeting | NA | X | rare (F) | NA | bp_11 | |
| Outside directors-only annual board meeting | rare (NP) | rare (NP) | X | NA | bp_12 | |
| Board receives materials in advance | X (NP) | X | NA | NA | bp_13 | |
| Nonexecutives can hire counsel, advisors | NA (NP) | X | NA | NA | bp_14 | |
| Firm has code of ethics | X (NP) | X | feas (NP) | X | bp_15 | F (3) |
| Bylaw/policy to govern board | X (NP) | not avail | X (NP) | X | bp_16 | |
| Directors' votes recorded in board minutes | avail (NP) | avail (NP) | X (NP) | NA | bp_17 | |
| Firm has foreign outside director | rare (NP) | avail (NP) | X | avail | bp_18 | 3 |
| Firm evaluates outside directors | avail (NP) | avail (NP) | X | NA | bp_21 | |
| Shareholders approve outside directors' pay | NA | rare (NP) | X (NP) | NA | bp_22 | |
| Outside directors attend min. % of meetings | NA | avail (NP) | X (70%) | NA | bp_23 | |
| Code of conduct for outside directors | NA | avail | X | NA | bp_24 | |
| Contact person to support outside directors | NA | NA | X | NA | bp_25 | |
| Firm has internal audit/control function | NA | avail (NP) | required | X | bpa_1 | |
| Audit committee membership disclosed | NA | avail (NP) | required | X | bpa_2 | |
| Bylaw to govern audit committee | avail (NP) | X | X (NP) | NA | bpa_3 | |
| Company discloses audit committee bylaws | NA | NA | feas | X | bpa_4 | |
| Audit committee recommends external auditor | NA | X | NA | NA | bpa_5 | |
| Outside directors on audit comm meet separately | NA | X | NA | NA | bpa_6 | |
| Audit committee includes acc'g or finance expert | avail (NP) | required | X (NP) | NA | bpa_9 | |
| Audit committee approves internal audit head | NA | avail (NP) | X (NP) | NA | bpa_10 | |

| ELEMENTS | BRAZIL | INDIA | KOREA | TURKEY | LABEL | COMMON INDEX-2 |
|---|------------|-------------------|-------------|-------------|--------|---------------------|
| Audit committee (or internal auditor) reviews financials w. outside auditor | NA | NA | X | NA | bpa_15 | |
| ≥ 4 audit committee meetings/ year | NA | NA | X | NA | bpa_16 | |
| Disclosure Subindex | | | | | | |
| RPTs are disclosed to shareholders | X (NP) | X | required | required | dis_1 | 3 |
| Firm has regular meetings with analysts | X (NP) | X | X (NP) | NA | dis_2 | |
| Firm discloses 5% holders | common | X | required | avail | dis_3 | PUB (3) |
| control group shareholder agreement disclosed | feas | X | NA | NA | dis_4 | |
| annual financials on firm website | NA | X | avail, NM | X | dis_5 | |
| Quarterly financial statements are consolidated | X | feas | feas | required | dis_6 | |
| quarterly financials on firm website | NA | X | NA | X | dis_7 | |
| Firm puts annual report on firm website | NA | X | NA | X | dis_8 | |
| Directors' report on firm website | NM | X | NM | NM | dis_9 | |
| Corp governance report on firm website | NM | X | NM | X | dis_10 | |
| Firm discloses material events on firm website | NA | NA | NA | X | dis_11 | |
| Firm discloses annual agenda of corporate events | X | NA | required | X | dis_12 | |
| Firm charter available on firm website | NA | NA | NM | X | dis_14 | |
| English language financial statements exist | X | NM | X (NP) | X | dis_15 | PUB (3) |
| Financials include statement of cash flows | X | required | required | required | dis_16 | PUB _{only} |
| Financial statements in IFRS or US GAAP | X | feas | rare | required | dis_17 | |
| MD&A discussion in financial statements | X | required | required | NA | dis_18 | |
| shareholder voting information on firm website | NA | NA | NA | X | dis_19 | |
| Firm discloses list of insiders | NA | NA | NA | X | dis_20 | |
| Firm discloses director shareholdings | NA | feas (NA) | required | X | dis_21 | |
| Governance charter or guidelines disclosed | NA | avail (NP) | NA | X | dis_24 | |
| Annual meeting results disclosed | required | not avail | required | X | dis_25 | |
| Board members' roles/employment disclosed | avail | NA | required | X | dis_26 | |
| Board members' background disclosed | avail | NA | X | X | dis_27 | |
| Board members date of joining board disclosed | feas | NA | required | X | dis_28 | |
| Background of senior managers disclosed | avail | NA | No avail | X | dis_29 | |
| Information re internal audit/control disclosed | NA | NA | required | X | dis_30 | |
| Number of board meetings disclosed | avail (NP) | feas (NP) | required | X | dis_31 | |
| Board resolutions disclosed | NA | NA | required | X | dis_32 | |
| Executive director compensation disclosed | NA | NA | required | X | dis_33 | |
| Auditor does not provide non-audit services | X (NP) | X | feas | NA | dis_34 | |
| Non-audit fees < 25% of total auditor fees | NA | X | feas | NA | dis_35 | |
| Full board reviews auditor's recommendations | NA | X | NA | NA | dis_36 | |
| Audit partner is rotated every 5 years | NM | X | feas | NA | dis_38 | |
| Ownership Structure Subindex | | | | | | |
| Largest shareholder's fraction of common shares | X | avail | avail | avail | own_1 | |
| common shares/total shares | X | NM | NM | NM | own_2 | |
| Ownership parity | X | disparity is rare | X | X | own_3 | 3 |
| Size of control group | X | NA | NA | NA | own_5 | |
| Firm has an outside 5% institutional investor | X | avail | feas | X | own_6 | |
| Controllers do not have special nomination rights | NM | not allowed | not allowed | X | own_7 | |
| shares w. preferred voting rights do not exist | NM | not allowed | not allowed | X | own_8 | |
| Shareholder Rights Subindex | | | | | | |
| All directors serve one year terms | X | avail (NP) | feas, rare | common (F) | sr_1 | |
| Outside directors serve one year terms | avail | X | feas | X | sr_2 | |
| Firm allows voting by postal ballot | avail (NP) | X | feas (NP) | Not allowed | sr_3 | |
| Company has policy against insider trading | NA | X | NA | X | sr_4 | |
| Board includes at least one member elected by minority shareholders | X (NP) | X | NA, rare | NA | sr_5 | |
| Cumulative voting for election of directors | avail (NP) | not allowed | X | not allowed | sr_6 | X |

| ELEMENTS | BRAZIL | INDIA | KOREA | TURKEY | LABEL | COMMON INDEX-2 |
|--|-------------|-------------|-------------------------|----------|--------|----------------|
| Director candidates disclosed to shareholders in advance of shareholder meeting | avail (NP) | NA | X | NA | sr_8 | |
| No class of shares w. special nomination rights (except to give rights to 2 nd major shareholder) | not allowed | not allowed | not allowed | X | sr_9 | |
| No class of shares w. multiple voting rights | not allowed | not allowed | not allowed | X | sr_10 | |
| No founder shares or other special cash flow rights | not allowed | not allowed | not allowed | X | sr_11 | |
| Firm has investor relations department or contact | required | avail | NA | X | sr_12 | |
| Freezeout offer based on shares' economic value | X | required | required | required | sr_13 | |
| Takeout rights on sale of control > legal minimum | X | NM | NM | NA | sr_14 | |
| Disputes with shareholders subject to arbitration | X | X | NA | NA | sr_15 | |
| Firm provides preemptive rights | X (NP) | required | required | common | sr_16 | |
| Free float is at least 25% of total shares | X (NP) | feas | avail | feas | sr_17 | |
| Related Party Transactions (RPT) Subindex | | | | | | |
| No loans to insiders | X | X | NA | X | rpt_1 | |
| No significant sales to/purchases from insiders | X | X | avail | NA | rpt_2 | |
| No real property rental from or to an insider | X | X | feas | NA | rpt_3 | |
| Negligible revenue from RPTs (0-1% of sales) | NA | X | avail | avail | rpt_4 | |
| No significant RPTs (RPTs/sales < 5%) | NA | avail (NP) | avail | X | rpt_5 | |
| No RPTs needed board/audit committee approval in last 3 years | NA | X | feas | NA | rpt_6 | |
| RPTs are on arms-length terms | NA | X | NM | NA | rpt_7 | |
| RPTs require board approval | X (NP) | avail (NP) | X ³¹ | required | rpt_8 | 3 |
| RPTs approved by noninterested directors | X (NP) | avail (NP) | required if > threshold | required | rpt_9 | |
| RPTs approved by noninterested shareholders | X (NP) | avail (NP) | NA | NA | rpt_10 | |
| RPTs with <i>executives</i> approved by board, audit committee or shareholders | NA | X | required | NA | rpt_11 | |
| RPTs with <i>executives</i> approved by audit committee or non-interested directors | NA | X | NA | NA | rpt_12 | |
| RPTs with <i>executives</i> approved by shareholders | NA | X | feas, rare | NA | rpt_13 | |
| RPTs with <i>controlling shareholder</i> approved by board, audit committee or shareholders | NA | X | required if > threshold | NA | rpt_14 | |
| RPTs with <i>controlling shareholder</i> approved by audit committee or non-interested directors | NA | X | NA | NA | rpt_15 | |
| RPTs banned by company charter | X | NA | rare (F) | NA | rpt_16 | |

Cell entries: X = element used; avail = element not used in country index, but data is available (we have it, or could obtain it without great effort). feas or F = element not used, data could be collected with substantial additional effort. NA = data not available. NP = data from private survey; not publicly available. NM = not meaningful (redundant, or involves institution unique to another country). Required = required by law. rare = avail but rare (minimal within country variation); Common = avail but nearly universal (minimal variation). Public index = element is publicly avail in all countries. Entries in common index-2 column: X = element avail in all four countries, and useful in two or more countries; 3 = usable in three or more of the four countries; PUB = publicly available in all four countries plus Russia and element is used in common-2 index; PUB_{only} is similar, but element is not part of common-2 index.

³¹ Included in Korea Shareholder Rights Subindex.

Table 3

Summary statistics for non-normalized corporate governance indices in each country. Index in each country runs from 0~100.

| Country | Period | Mean | Med. | S.D. | Min. | Max. | First Year Mean | Last Year Mean |
|---------|-----------|-------|-------|-------|-------|-------|-----------------|----------------|
| Brazil | 2004-2009 | 62.13 | 65.44 | 15.44 | 19.11 | 91.53 | 53.34 | 63.96 |
| India | 2005-2012 | 59.17 | 59.87 | 10.81 | 24.62 | 86.92 | 57.28 | 60.96 |
| Korea | 1998-2004 | 34.85 | 32.81 | 12.61 | 7.03 | 98.82 | 23.74 | 44.18 |
| Turkey | 2006-2011 | 23.53 | 24.23 | 7.34 | 4.83 | 40.15 | 40.19 | 44.22 |
| Russia | 1999-2005 | 0.00 | 0.05 | 1.00 | -2.90 | 3.51 | | |

Notes: Sample within each country is pooled across years. Russian index is normalized. Other country indices are non-normalized (average of non-normalized sub-indices, each 0~100). Country indices are defined in the text.

Table 4
Principal non-governance variables

| | Definitions | Winsorization | Used in | Common set |
|----------------------------|---|---------------|-----------|------------|
| Tobin's q | (book value of debt + market value of common stock)/ book value of assets. | - | all | Yes |
| $\ln(\text{Tobin's } q)$ | Tobin's q in logarithm | - | all | Yes |
| $\ln(\text{assets})$ | Book value of assets | - | all | Yes |
| $\ln(\text{listed years})$ | Years since public listing + one in logarithm. India: Use years since incorporation. | - | all - R | Yes |
| Book leverage | Total liabilities over total assets. India: Use total debt. | 99% | all | yes |
| Net Income/assets | Ratio of net income over assets | 1%/99% | all | Yes |
| EBIT/sales | Ratio of earnings before interest and tax (EBIT) to total sales | 1%/99% | all - R | Yes |
| 3-yr sales growth | Geometric average sales growth during past three years (or available period if less). | 1%/99% | all | Yes |
| PPE/sales | Ratio of property, plant, and equipment (PPE) to total sales | 99% | all - R | Yes |
| Turnover | (shares traded in year t)/(shares outstanding), adjusted for share issuances and splits | 99% | all | Yes |
| Inside ownership | Fractional ownership of common (and equivalent) shares by largest shareholder | - | all - R | Yes |
| Foreign ownership | Fractional ownership by foreigners | - | all - R | - |
| State ownership | Fractional ownership by the state | - | all - R | Yes |
| Free Float | Fraction of shares floating on the stock exchange (excludes shares held by insiders) | - | all - I,R | Yes |
| Capex/PPE | Ratio of capital expenditure to PPE | 99% | all - B,R | - |
| R&D/sales | Ratio of R&D expenditure to total sales. | 99% | all - B,R | - |
| Advertising/sales | Ratio of advertising expense to total sales. | 99% | all - B,R | - |
| Exports/sales | Ratio of export revenue to total sales. | 99% | all - B,R | - |
| Market share | Firm's share of sales by all public firms in same industry | - | all - B,R | - |
| Business group | 1 if firm belongs to business group in year t , 0 otherwise. | - | all - R | yes |
| MSCI | 1 if firm belongs to Morgan Stanley Capital International Index (MSCI). | - | all - B | - |
| US cross listing | 1 if firm is cross-listed in US (any level) in year t , 0 otherwise | - | all - R | yes |
| industry dummies | defined in each country; mapped to US 2-digit SIC codes when using common controls | | all - R | yes |

Definitions of principal non-governance variables, winsorization level for regressions in which we winsorized control variables; and indication of which controls are available in each of Brazil (B), India (I), Korea (K), Russia (R), and Turkey (T). We drop firm-years with zero or negative sales. Last column indicated which control variables are available in Brazil, India, Korea, and Turkey; we use these variables in "common controls" regressions below. We replace missing values with zero for R&D/sales, advertising/sales, and exports/sales. Income statement amounts are measured for each year t ; balance sheet amounts at the end of each year t .

Table 5
Regressions using country-specific indices and controls.

| dependent variable | | ln(Tobin's q ; outliers excluded) | | | | | |
|--------------------|---|-------------------------------------|---------------------------|--------------------------|---------------------------|---------------------------|---------------------------|
| Panel | | Brazil | India | Korea | Turkey | Russia | |
| 1 | Cross-sectional <i>OLS</i> (first year in Brazil, India, Turkey; 2001 in Korea, 2003 in Russia) | Country <i>CGI</i> | 0.150*** (3.10) | 0.107** (2.09) | 0.065*** (4.22) | 0.133*** (2.79) | 0.088** (2.39) |
| | | No. of firms | 59 | 233 | 494 | 167 | 63 |
| | | Adj. R ² | 0.55 | 0.32 | 0.54 | 0.42 | 0.84 |
| | | Year | 2004 | 2006 | 2001 | 2006 | 2003 Q3 |
| 2 | Pooled <i>OLS</i> | Country <i>CGI</i> | 0.106*** (3.16) | 0.037 (1.42) | 0.056*** (6.02) | 0.081*** (3.26) | 0.148*** (6.19) |
| | | No. of obs. (firms) | 236 (159) | 636 (399) | 3,272 (668) | 978 (194) | 964 (99) |
| | | Adj. R ² | 0.35 | 0.30 | 0.53 | 0.50 | 0.66 |
| | | Period | 2004-09 | 2006-12 | 1998-2004 | 2006-11 | 1999-2005 |
| 3 | Firm Random Effects | Country <i>CGI</i> | 0.114*** (3.03) | 0.064** (2.57) | 0.054*** (6.51) | 0.069*** (2.87) | 0.094*** (6.22) |
| | | No. of obs. (firms) | 236 (159) | 636 (399) | 3,272 (668) | 978 (194) | 964 (99) |
| | | Breusch-Pagan test | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | | Hausman test | 0.0001 | n.a. | 0.0000 | 0.0000 | n.a. |
| | | Median λ | 0.33 | 0.30 | 0.61 | 0.66 | 0.71 |
| | | Overall R ² | 0.40 | 0.33 | 0.53 | 0.49 | 0.63 |
| 4 | Firm Fixed Effects | Country <i>CGI</i> | 0.088 (1.15) | 0.075** (2.27) | 0.051*** (5.55) | 0.054** (2.00) | 0.067*** (2.75) |
| | | No. of obs. (firms) | 146 (72) | 423 (186) | 3,272 (668) | 974 (190) | 964 (99) |
| | | Within R ² | 0.50 | 0.34 | 0.38 | 0.51 | 0.45 |

Notes: Table shows coefficients for indicated regressions of ln(Tobin's q) on country *CGI* and control variables. Country *CGI* is renormalized sum of normalized subindices (mean =0; $\sigma=1$). Control variables are listed in Table 4. Time-invariant dummy variables (industry, business group, US cross listing, MSCI) drop out with firm fixed effects. Observations are excluded as outliers if a studentized residual from regressing ln(Tobin's q) on *CGI* (year-by-year for panel data) $> \pm 1.96$. Pooled regressions in Panels 2-4 use year dummies. *OLS* and random effects regressions include industry dummies. Fixed effects sample excludes firms observed only once. t -statistics (heteroskedasticity-consistent for cross-sectional *OLS*; firm clusters otherwise (firm-index clusters in Russia)) are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are in **boldface**. Values for Breusch-Pagan and Hausman tests are p -values.

Table 6
Alternative specifications for firm fixed effects (FE) and random effects (RE) regressions

| Panel | specification | Brazil | | India | | Korea | | Turkey | | |
|-----------------------|--|----------------|---------------------------|------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------|
| | | RE | FE | RE | FE | RE | FE | RE | FE | |
| 1 | Base specification (from Table 5) | <i>CGI</i> | 0.114*** (3.03) | 0.088 (1.15) | 0.064** (2.57) | 0.075** (2.27) | 0.054*** (6.51) | 0.051*** (5.55) | 0.069*** (2.87) | 0.054** (2.00) |
| | | Obs. (firms) | 236 (159) | 146 (72) | 636 (399) | 423 (186) | 3,272 (668) | 3,272 (668) | 978 (194) | 974 (190) |
| | | R ² | 0.40 | 0.50 | 0.33 | 0.34 | 0.53 | 0.38 | 0.49 | 0.51 |
| 2 | Common controls | <i>CGI</i> | 0.114*** (3.03) | 0.088 (1.15) | 0.068*** (2.68) | 0.083*** (2.66) | 0.065*** (7.61) | 0.061*** (6.35) | 0.068*** (2.62) | 0.051* (1.83) |
| | | R ² | 0.40 | 0.50 | 0.35 | 0.30 | 0.45 | 0.34 | 0.48 | 0.50 |
| 3 | Winsorize controls | <i>CGI</i> | 0.114*** (3.03) | 0.088 (1.15) | 0.065*** (2.67) | 0.080** (2.42) | 0.053*** (6.61) | 0.050*** (5.47) | 0.069*** (2.81) | 0.053* (1.97) |
| | | R ² | 0.40 | 0.50 | 0.35 | 0.37 | 0.54 | 0.40 | 0.49 | 0.52 |
| 4 | Limited control variables | <i>CGI</i> | 0.112*** (2.97) | 0.096 (1.10) | | | 0.060*** (7.21) | 0.053*** (5.54) | 0.068** (2.47) | 0.070** (2.40) |
| | | R ² | 0.28 | 0.37 | | | 0.24 | 0.19 | 0.38 | 0.46 |
| 5 | EBIT/sales as sole control for profitability | <i>CGI</i> | 0.112*** (2.92) | 0.094 (1.14) | 0.066*** (2.66) | 0.072** (2.20) | 0.053*** (6.59) | 0.050*** (5.46) | 0.071*** (2.80) | 0.056** (2.07) |
| | | R ² | 0.38 | 0.49 | 0.32 | 0.35 | 0.54 | 0.39 | 0.48 | 0.51 |
| 6 | Winsorize $\ln(\text{Tobin's } q)$ | <i>CGI</i> | 0.0807* (1.85) | 0.057 (0.66) | 0.048 (1.26) | 0.015 (0.31) | 0.048*** (5.09) | 0.040*** (3.65) | 0.082*** (2.79) | 0.076** (2.34) |
| | | R ² | 0.45 | 0.49 | 0.24 | 0.30 | 0.51 | 0.36 | 0.53 | 0.47 |
| 7 | $\ln(q)$, neither winsorize nor exclude outliers | <i>CGI</i> | 0.0807* (1.84) | 0.052 (0.60) | 0.041 (0.90) | 0.003 (0.06) | 0.022* (1.70) | 0.006 (0.33) | 0.082*** (2.77) | 0.071** (2.15) |
| | | | 0.45 | 0.49 | 0.23 | 0.29 | 0.40 | 0.21 | 0.57 | 0.49 |
| 8 | raw Tobin's q (exclude outliers) | <i>CGI</i> | 0.0929 (1.28) | 0.080 (0.47) | 0.552 (1.33) | 0.199 (0.36) | 0.037*** (3.74) | 0.024** (1.99) | 0.213 (1.58) | 0.267 (1.60) |
| | | R ² | 0.36 | 0.51 | 0.14 | 0.26 | 0.45 | 0.28 | 0.24 | 0.13 |
| 9 | dep. variable $\ln(\text{market/book})$; exclude outliers | <i>CGI</i> | | | | | 0.125*** (5.62) | 0.110*** (4.26) | 0.170 (1.05) | 0.264 (1.28) |
| | | R ² | | | | | 0.45 | 0.32 | 0.34 | 0.42 |
| Common-2 Index | | <i>CGI</i> | 0.0315 (1.16) | 0.0208 (0.54) | 0.019 (0.63) | -0.005 (-0.12) | 0.0136** (2.23) | 0.0093 (1.39) | 0.002 (0.09) | 0.007 (0.25) |
| | | R ² | 0.38 | 0.48 | 0.37 | 0.33 | 0.44 | 0.32 | 0.46 | 0.52 |

Notes: Table shows coefficients for indicated regressions of $\ln(\text{Tobin's } q)$ on country *CGI* and control variables. Sample and country indices are same as in Table 5; dependent variable, means of addressing outliers, and control variables (coefficients suppressed) are same as Table 5 except as indicated. Table 4 discusses how we winsorize controls. Limited control variables in Panel 4 are $\ln(\text{assets})$; $\ln(\text{years listed} + 1)$; 3-year sales growth, PPE/sales, R&D/sales, exports/sales; 2-digit US SIC industry dummies, and cross-listing dummy. *t*-statistics (using firm clusters) in parentheses. R² is overall for random effects; within for fixed effects. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) in **boldface**.

Table 7
Multicountry Regressions with Pooled Index and Common-2 Index

| | | (1) | (2) | (3) | Included together | | Included together | | |
|-------|--------------------------------|------------------------|---------------------------|---------------------------|---------------------------|-----------------|---------------------------|---------------------|---------------------------|
| | | | | | (4A) | (4B) | (5A) | (5B) | |
| Panel | | Pooled CGI | Common-2 Index | Non-common CGI | Common-2 Index | Non-common CGI | Common-2 Index | Pooled CGI | |
| 1 | Cross-sectional OLS (weighted) | Coefficient | 0.074*** (5.62) | 0.033*** (3.47) | 0.100*** (4.80) | 0.014 (1.38) | 0.089*** (3.81) | -0.005 (-0.43) | 0.080*** (4.66) |
| | | No. of obs. (firms) | 725 | 714 | 714 | 714 | 649 | | |
| | | Adj. R ² | 0.508 | 0.483 | 0.495 | 0.495 | 0.487 | | |
| 2 | Pooled OLS (weighted) | Coefficient | 0.071*** (5.92) | 0.023* (1.89) | 0.126*** (5.82) | 0.004 (0.30) | 0.123*** (5.14) | -0.019 (-1.34) | 0.082*** (5.44) |
| | | No. of obs. (firms) | 5,214 (1,422) | 4,853 (1,240) | 4,847 (1,238) | 4,847 (1,238) | 4,847 (1,238) | | |
| | | Adj. R ² | 0.439 | 0.456 | 0.464 | 0.464 | 0.467 | | |
| 3 | Firm random effects | Coefficient | 0.071*** (7.30) | 0.014** (1.96) | 0.102*** (8.07) | 0.001 (0.13) | 0.101*** (7.49) | -0.016** (-1.97) | 0.074*** (7.10) |
| | | Breusch-Pagan test | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | | Median λ | 0.714 | 0.720 | 0.722 | 0.722 | 0.714 | 0.714 | 0.714 |
| | | Overall R ² | 0.451 | 0.467 | 0.477 | 0.477 | 0.478 | 0.478 | 0.478 |
| 4 | Firm fixed effects (weighted) | Coefficient | 0.075*** (4.15) | 0.007 (0.44) | 0.114*** (4.98) | 0.001 (0.05) | 0.114*** (4.87) | -0.020 (-1.38) | 0.074*** (3.91) |
| | | No. of obs. (firms) | 5,214 (1,078) | 4,853 (986) | 4,847 (985) | 4,847 (985) | 4,847 (985) | 4,847 (985) | |
| | | Within R ² | 0.336 | 0.334 | 0.346 | 0.346 | 0.346 | 0.350 | |

Notes: Coefficients on governance indices from indicated OLS, random effects (RE), and fixed effects (FE) regressions. Sample is pooled across countries and (except for Panel 1) sample years. Pooled CGI index uses country CGI values (defined in text) for Brazil, India, Korea, and Turkey. Common-2 index is defined in text. Country-level Non-common CGI indices are constructed in same manner as country-CGI, using elements that are *not* part of Common-2 Index, then combined into a multicountry Non-common CGI Index. All regressions use winsorized common control variables (shown in Table 4); coefficients are suppressed. OLS and RE regressions include industry dummies. Panel 1 includes country dummies; Panels 2-4 include year*country dummies. Pooled OLS and FE regressions use country weights = (1/no. of firms); weights are not available with RE. Observations are excluded as outliers if a studentized residual from regressing $\ln(\text{Tobin's } q)$ on CGI (within country, year-by-year, for panel data) $> \pm 1.96$. FE sample excludes firms observed only once. t -statistics (heteroskedasticity-consistent for cross-sectional OLS; firm clusters otherwise) are in parentheses. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are in **boldface**. Values for Breusch-Pagan test are p -values.