Corporate governance norms and practices

Vidhi Chhaochharia [a], Luc Laeven [b,c,d,*]

[a] *School of Business, University of Miami, Coral Gables, FL, USA*
[b] *International Monetary Fund, Washington, DC, USA*
[c] *CEPR, London, UK*
[d] *ECGI, Brussels, Belgium*

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ABSTRACT

We evaluate the impact of corporate governance on the valuation of firms in a large cross-section of countries. Unlike previous work, we differentiate between minimally accepted governance attributes that are satisfied by all firms in a given country and governance attributes that are adopted at the firm level. This approach allows us to differentiate between firm-level and country-level corporate governance, thus contributing to an ongoing debate in the literature about whether governance attributes are largely determined by country factors or firm characteristics. Despite the costs associated with improving corporate governance at the firm level, we find that many firms choose to adopt governance provisions beyond those that are adopted by all firms in the country, and that these improvements in corporate governance are positively associated with firm valuation. Firms that choose not to adopt sound governance mechanisms tend to have concentrated ownership and sizeable free cash flow, consistent with agency theories based on self-interested managers and controlling shareholders. Our results indicate that the market rewards companies that are prepared to adopt governance attributes beyond those required by laws and common corporate practices in the home country.

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* Corresponding author at: Research Department, International Monetary Fund, 700 19th Street, N.W., 20431 Washington, DC, USA. Fax: +1 202 623 4740.
E-mail address: llaeven@imf.org (L. Laeven).

1. Introduction

Recent corporate scandals and business failures have spurred a lively debate on whether firms are properly governed.[1] Countries have responded to these debacles by enacting laws and regulations aimed at improving corporate disclosure and governance practices.[2] Many firms, in turn, have changed their corporate charters and board structures. The implementation of these new rules and procedures, however, does not come without cost to firms and their shareholders. These responses thus raise the question whether such changes in governance are reflected in improvements in firm valuation, and if so, why not all firms improve their governance.

Three influential studies by Gompers et al. (2003), Durnev and Kim (2005), and Doidge et al. (2007) shed some light on these issues. Gompers et al. (2003) examine the relation between corporate governance and firm value for a large sample of U.S. firms and find that sound governance structures are associated with higher firm value. Durnev and Kim (2005) confirm the existence of a relationship between firm-level governance attributes and firm value in a cross-section of countries. Doidge et al. (2007) show that country characteristics account for a large part of the variation in firm-level governance across countries, because it is costly for firms to adhere to stricter governance standards than those imposed by the country. While the results of these papers do not necessarily contradict each other, they do raise the question whether it is mostly firm-level or country-level characteristics that determine governance at the firm level.

In this paper, we evaluate the impact of firm-level governance attributes on the valuation of firms in a large cross-section of countries, thus contributing to an ongoing debate in the literature about whether governance is largely determined by country factors or firm characteristics. Unlike previous work, we differentiate between governance attributes that are adopted at the firm level and minimally accepted governance attributes that are satisfied by all firms in a given country. In contrast, past work examines generally either country-level regulations and laws or firm-level attributes. Using a new database of governance attributes of over 2300 firms in 23 countries, we construct a proxy for the minimally accepted criteria for corporate governance that are satisfied by all firms in the country, as dictated by laws and common practices in the country. Using this approach, we assess the degree to which firms adopt governance provisions that go beyond the "corporate norms" accepted by all firms in the country. By taking out the part that represent common practices in the country, we can focus on the independent effect of governance attributes that firms choose to adopt on firm valuation.

We further contribute to the existing literature by identifying firm-level characteristics that are associated with sound governance structures. We again exploit the large within-country variation in governance structures for this purpose. This analysis sheds light on why many firms choose not to adopt sounds governance structures, despite their value-enhancing effect.

Our aim is not to assess which factors determine governance norms and practices,[3] nor to study the optimal design of corporate governance,[4] but rather to investigate the relationship between firm-level governance attributes and valuation by taking governance attributes as given.

Theory offers at least two reasons why firms adopt sound governance mechanisms, despite the costs associated with adoption. Adoption of governance attributes could act as a signaling device to ensure prospective investors that the firm is well-governed. Such signals could enable the firm to access external funds on better terms, which enhances firm valuation. Governance provisions could also act as a bonding device, where firms commit to investors to adhere to better governance standards (Licht, 2003; Doidge et al., 2004).

There are various costs associated with the adoption of sound corporate governance mechanisms. First are transaction costs associated with greater disclosure, including the cost of changing company charters, setting up nominating committees, paying outside directors and external auditors, and disseminating financial information to enhance corporate transparency. Second are private costs for

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[1] Well-known examples of such corporate scandals are WorldCom, Enron, and Parmalat.

[2] The Sarbanes–Oxley Act of 2002 in the United States, also known as the Public Company Accounting Reform and Investor Protection Act, is one example.

[3] Coffee (2006) shows that legal origin and social norms are important determinants of private benefits of control.

[4] For a model on the design of corporate governance, see John and Kedia (2006).

controlling shareholders associated with a reduced ability to extract private benefits from the firm at the expense of minority shareholders (Doidge et al., 2004). These costs may lead controlling shareholders to push for less than sound corporate governance.

There exists a large literature examining the relation between corporate governance and firm value (e.g., Yermack, 1996; Gompers et al., 2003; Bebchuk et al., 2004; Cremers and Nair, 2005; Dittmar and Mahrt-Smith, 2007; Core et al., 2006; Chhaochharia and Grinstein, 2007).[5] These studies generally find that governance attributes are associated with higher firm value. Some studies (e.g., Gompers et al., 2003; Bebchuk et al., 2004; and Cremers and Nair, 2005) use information from the bylaws of corporate charters, as we do, but they focus on U.S. firms only and therefore cannot assess whether results generalize to other countries. We add to this literature by analyzing such information for firms from a large number of countries, and by separating firm-level choices to enhance governance from common practices in the country.

A few papers, such as Klapper and Love (2004), Dittmar et al. (2003), and Durnev and Kim (2005), also assess the relationship between corporate governance and firm performance in an international context, but none of these papers uses information from the company's bylaws and charter provisions, as we do. Instead, they either use data on aggregate firm-level governance scores from Credit Lyonnais Securities Asia (CLSA).[6] These studies highlight the importance of studying the link between governance and firm valuation in an international context. They show that governance practices and rules differ markedly across countries, and that the relation between governance and valuation depends on the level of economic and financial development of the country. In independent, contemporaneous work, Aggarwal et al. (forthcoming) and Bruno and Claessens (2007) use the same data on corporate governance attributes as we do. Aggarwal et al. (forthcoming) compare governance provisions of foreign firms to those of comparable U.S. firms. They find that only a small fraction of foreign firms has better governance than matching U.S. firms, and that the valuation of these foreign firms is disproportionately positively affected. Bruno and Claessens (2007) find that corporate valuation is driven both by shareholder protection laws and governance attributes, and more so for firms that depend on external financing. None of these papers differentiate between minimally accepted governance attributes satisfied by all firms in a given country and governance attributes adopted at the firm level. In addition, none of these papers identify firm traits associated with sound governance structures. Nevertheless, their work is complementary to ours.

Our research generates a number of key findings. First, governance scores vary a great deal within countries. For example, governance scores in the U.S. vary from a low of 4 to a high of 16 (out of a maximum of 17). Such within-country variation appears at odds with firm-level governance being mostly driven by common country factors.

Second, countries differ in their firm-level governance norms. Country scores based on minimally accepted criteria vary much across countries, from a low of zero for Canada and France to a high of 6 for New Zealand. The minimum country score for the U.S. increased from 1 in 2003 to 3 in 2005, possibly as a result of the 2002 Sarbanes–Oxley Act that imposed stricter governance standards on firms (Chhaochharia and Grinstein, 2007; Hochberg et al., 2007).

Third, differences in firm-level governance norms cannot be explained by differences in laws. Country governance scores appear not correlated with indexes of investor protection laws.

Fourth, firms with governance scores that exceed their country's governance norms are valued higher than firms that do not. A one standard deviation increase in our "norms" adjusted firm-level governance score is associated with a 0.08 increase in Tobin's Q, which amounts to about one-tenth of the sample standard deviation in Tobin's Q.

Fifth, within-country variation in governance scores is strongly correlated with firm characteristics. Firms with ample free cash flow and concentrated ownership have relatively low governance scores, consistent with shareholder expropriation theories (e.g., Shleifer and Wolfenzon, 2002), while firms

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[5] For reviews of this literature, see Shleifer and Vishny (1997), Zingales (1998), and Becht et al. (2003).

[6] Khanna et al. (2006) show that the usefulness of the CLSA scores is limited because they are based on subjective opinions. Scores are based on information provided by the firm, and firms with poor governance are more likely to misreport. Doidge et al. (2007) show that the CLSA scores are mostly driven by country characteristics. See Dennis and McConnell (2003) for an overview of this literature.

with an American Depository Receipt (ADR) listing in the U.S., enhancing the firm's ability to attract outside capital, have relatively high governance scores.

Finally, we establish a link between governance and the need for external finance. Firms that are dependent on external finance are valued disproportionately higher if their governance exceeds their country's governance norms.

Our results are robust to a large number of robustness tests, including tests aimed at mitigating concerns about endogeneity between governance and valuation, including regressions that employ panel data techniques, instrumental variables, and industry-specific shocks.

Our paper proceeds as follows. Section 2 introduces the data and defines our main variables. Section 3 describes our empirical model and discusses the main results. Section 4 presents extensions and robustness tests. Section 5 concludes.

2. Data and variables

2.1. Firm-level data on corporate governance provisions

Our data source for corporate governance characteristics for firms is the Institutional Shareholder Service (ISS) Global Corporate Governance Database which publishes the Corporate Governance Quotient (CGQ). The ISS collects firm level governance characteristics for a sample of firms in 30 countries.[7] The sample from the U.S. is the largest. For our main analysis we only include U.S. firms included in the S&P index to keep the U.S. sample of firms comparable to the rest of our sample.[8] We drop offshore financial centers (Bermuda, Cayman Islands, and Luxembourg) and countries with less than three firms (China, Israel, South Africa and Thailand) from the sample.[9] The countries with the largest number of firms are Japan, UK and Canada, while Ireland and Portugal have the smallest number of firms.

ISS started collecting data for non-U.S. firms in 2003. Our sample is a panel that includes data on over 2300 firms for the period 2003 through 2005 with a total of 6134 firm-year observations. The panel is unbalanced with the sample substantially increasing in 2005, though our results are robust to using a balanced panel instead. The governance data covers up to 55 attributes for foreign firms and 64 attributes for U.S. firms. We have three years of data on corporate governance provisions for the period 2003 through 2005, so unlike many earlier studies we can create a panel dataset of firm-level corporate governance scores that vary over time. This allows us to employ panel data techniques and better address endogeneity issues. In robustness tests, we also report results of annual cross-sectional regressions.

ISS publishes a corporate governance score that encompasses information on all firm attributes it collects,[10] including information not included in the bylaws of the company. Since there is no theory to guide us on the relevance of some of these firm attributes for firm corporate governance (such as whether or not at least one member of the board has participated in an ISS-accredited director education program), we create our own index that focuses on governance provisions that are included in company bylaws and that are well motivated by economic theory.

2.2. Firm-level and country-level measures of corporate governance

We use the ISS data to create a governance index in the spirit of Gompers et al. (2003) and Bebchuk et al. (2004). The 17 components of our index are: no dual class structure with unequal

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[7] The non-U.S. sample are firms in the MSCI EAFE index which covers about 1000 stocks in 21 countries and approximately captures 85% of the market capitalization in these countries. The UK sample of firms represents 98% of the UK market and cover the FTSE All Share Index. The database covers 71% of the Canadian market with firms from the S&P/TSX index.

[8] For the matched sample analysis and the GMM estimations we use the full sample of U.S. and non-U.S. firms from 2001 to 2005 (over 7000 firms in total).

[9] Including these countries does not alter any of our findings.

[10] The weighting of the variables that make up the aggregate ISS index is proprietary information and unknown to us. We therefore create our own index that is a simple unweighted average of the 17 governance attributes.

voting rights; cumulative voting; no supermajority required to approve merger; no supermajority required to amend bylaws and charter; no classified board; shareholders can call special meetings; shareholders can act by written consent; no blank check or poison pill; CEO not on more than 2 boards; CEO and Chairman are separated; majority of board is independent; audit committee is independent; compensating committee is independent; nominating committee is independent; governance committee exists; no interlocked directors; and policy on outside directorships exists.[11] Our Corporate Governance Index, henceforth *CG Index*, is an equally weighted sum of these 17 sub indicators. The index ranges from 0 to 17, with higher scores denoting better corporate governance.[12] This approach is common in the literature (see, e.g., Gompers et al., 2003 and Bebchuk et al., 2004). Our CG index covers most of the firm attributes considered previously in the literature, including those considered by Bebchuk et al. (2004) and Gompers et al. (2003).[13] Also, our index covers the main categories of the CLSA index.

To differentiate between governance attributes that are satisfied by all firms in a given country and those that are not, we compare each firm's CG score with a country level score of minimally accepted criteria. Specifically, we create a country minimum score *CG Country Index* that is the equally weighted sum of the attributes that are satisfied by all firms in a given country. We apply the minimally accepted criterion to each attribute and include only those attributes that are satisfied by all firms in this country-level governance index. While some of these attributes may not be enforced by law, including these in our country-level index is not problematic because they represent "corporate norms" that are accepted by all firms in a given country.[14]

The variable *Adjusted CG Index* is the difference between the firm-level CG Index and the country-level CG Country Index. By abstracting from changes over time in the norm-based CG score in the country, as captured by the CG Country Index, we can focus on changes over time in the CG Index that are firm-specific. Hence, unlike previous literature, this approach allows us to differentiate between improvements in corporate governance at the firm-level and improvements in corporate governance at the country-level.

2.3. Other variables

As a measure of corporate valuation we use the Tobin's Q ratio, measured as the ratio of market to book value of assets. The market value of assets is calculated as the sum of the book value of assets plus the market value of common stock less the book value of common stock.

We use several control variables in the different tests. First, we control for firm size using the natural logarithm of sales. To measure firm investment opportunities we use past sales growth as it not affected by different accounting rules like earnings. To proxy for constraints to finance investment

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[11] The 17 components of the CG index can be broadly classified under the first 6 categories of the CLSA index, including discipline, transparency, independence, accountability, responsibility, and fairness. Our data capture some aspect of each of these 6 categories. We do not have data related to social awareness, the remaining category of the CLSA index.

[12] In our sample, the highest score obtained by any firm is 16. While the ISS database contains data on several other governance attributes, including data on ownership structure, data on these other variables is sparse or incomplete and we prefer therefore not to include these variables in our main analysis. Our results, however, do not alter qualitatively when including these additional attributes in our corporate governance index.

[13] Unlike Gompers et al. (2003) who focus on the United States where dual class shares are not common, we include information on whether or not the firm has a dual class structure with unequal voting rights. A large literature has shown that the incentive structures and valuation of firms with dual class shares differs from that of firms with single class shares (e.g., Nenova, 2003; Dyck and Zingales, 2004), and our sample includes firms from several countries, notably France and Sweden, where dual class share structures are common. Also, unlike Gompers et al. (2003), we do not include information on 6 state laws that are specific to the U.S.

[14] It is important to note that our approach differs from simply using the average of the corporate index in a given country as a proxy for country-level governance. Let us illustrate this with an example. Assume that one of the countries has only 17 firms and each firm satisfies only one attribute that is different from the attribute satisfied by any of the other firms in the country. A simple average across firms in the country would give a country-level governance index of 1, while our definition would give a country-level governance index of 0. The average score would be misleading because there is no common corporate governance attribute in this country that is accepted or enforced nationwide. Also, our approach is not equivalent to including country fixed effects because we allow our country-level corporate governance index to vary over time.

we use the Demirguc-Kunt and Maksimovic (1998) measure of external financing. This measure is the difference between required capital and available capital. Required capital is measured by the growth rate of total assets and available capital as ROE/(1 − ROE), where ROE is the return on equity capital. We also include the ratio of debt to total assets as a measure of financial leverage. Firms with ADR listings are subject to U.S. regulations and their governance practices and valuations could therefore differ from non-ADR firms. We therefore construct a dummy variable that takes the value 1 if the firm has an ADR listing, and 0 otherwise. Finally, we classify firms into 24 industry groups using the MSCI industry classification (these industry groupings are using to control for industry fixed effects in the regressions). The accounting data come from Compustat for U.S. firms and World Scope for non U.S. firms. The return data are obtained from CRSP for U.S. firms and from Datastream for non-U.S. firms. All variables with monetary values are measured in U.S. dollars. The data on ADR listings are from the Bank of New York database on ADR listings.

2.4. Summary statistics

Table 1 presents summary statistics of the CG Index at the country level by year. CG scores have increased over the period 2003 through 2005 from an median score of 6.35 in 2003 to a median score of 6.83 (out of a maximum score of 17). We observe a wide variation in CG scores across countries, within countries, and over time. For the year 2003, the median CG score ranges from a low of 4 in France to a high of 10 in Canada and the U.S. None of the firms obtains the maximum attainable governance score of 17; the highest score in the sample is 16 for a U.S. firm. The U.S. also displays the largest variation in CG scores, with scores ranging from a low of 4 to a high of 16. The lowest score in the sample of 2 can only be found in France, Spain, and the Netherlands. Table 1 also reports for each country the number of firms included in our sample and the number of these firms that have ADRs.

Table 1 also presents summary statistics for the Country CG Index and the Adjusted CG Index. For the U.S., we find that only one of the corporate governance attributes was adopted by all firms in the sample in 2003. The median value of the CG Index, however, takes on a high score of 10. This indicates that while U.S. firms tend to adopt a large number of governance attributes, there is much dispersion in the type of attributes they adopt. In 2003, none of the U.S. firms in our sample had interlocked directors; this is the only common corporate governance attribute in the U.S. that is accepted or enforced nationwide. The minimum score for the CG Index in the U.S. of four can be broken down in two parts: a score of one for the Country CG Index and a minimum score across firms in the country of three for the Adjusted CG Index. This indicates that while there is only one attribute that all firms satisfy, no firm satisfies less than three attributes (albeit different attributes). The Country CG Index ranges from a low of zero for Canada and France to a high of 6 for New Zealand in the year 2003.

Table 2 displays for each of the 17 components of our CG index the percentage of firms in each country that has adopted a particular governance provision. The 17 governance dummy variables considered are constructed such that they take on a value of one if the firm has adopted a provision that enhances corporate governance, and a zero if the firm has adopted a provision that deteriorates governance, such as anti-takeover provisions or provisions that limit the rights of shareholders. We observe wide variation in the type of provisions that are frequently adopted across countries. Dual class shares tend to be common in France and Sweden but are rarely used in most other countries. Cumulative voting is common in Hong Kong, Ireland, and France, but is rarely used in other countries. Firms in most of our countries require a supermajority for mergers and amendments of bylaws, the exceptions being Canada, Hong Kong, Ireland, Singapore and the U.S. Firms in most of our countries also require a supermajority to amend bylaws, the exceptions being Greece and Ireland. Classified boards are common in most countries except Canada and Sweden. Shareholders can call special meetings at firms in most countries, Ireland and the U.S. being notable exceptions. Shareholders cannot act with written consent at firms in many countries except in the UK, Hong Kong, and Japan where shareholders at almost all firms can do so. Blank checks and poison pills are anti-takeover devices are virtually non-existing in most countries, except Canada, the Netherlands, and the U.S., where they are frequently used. CEOs at firms in most countries are not allowed to sit on more than 2 board,

Table 1
Firm level governance scores by country.

Country	2003							2004							2005						
	Median CG Index	Min CG Index	Max CG Index	Median Adjusted CG Index	Country CG Index	N	ADRs	Median CG Index	Min CG Index	Max CG Index	Median Adjusted CG Index	Country CG Index	N	ADRs	Median CG Index	Min CG Index	Max CG Index	Median Adjusted CG Index	Country CG Index	N	ADRs
Australia	8	5	11	6	2	87	41	7	5	12	6	1	83	38	6	4	12	5	1	119	42
Austria	5	4	6	1	4	23	18	5	4	7	1	4	18	17	5	4	7	1	4	19	17
Belgium	5	3	8	4	1	24	3	5	4	8	3	2	20	3	5	3	9	5	0	25	4
Canada	10	6	13	10	0	185	1	11	6	14	11	0	174	1	10	5	13	8	2	164	0
Denmark	5	3	7	3	2	25	6	5	4	6	2	3	23	6	6	4	9	3	3	22	6
Finland	6	3	8	5	1	30	6	5	3	9	4	1	29	7	7	4	10	6	1	31	7
France	4	2	8	4	0	87	42	5	2	9	5	0	73	37	6	3	11	6	0	83	41
Germany	5	3	6	3	2	89	34	5	4	7	3	2	84	36	6	4	10	3	3	85	38
Greece	6	5	8	2	4	47	20	6	4	8	2	4	43	17	6	5	10	3	3	43	17
Hong Kong	9	6	11	6	3	53	38	8	6	12	5	3	56	34	8	7	11	4	4	111	56
Ireland	7	4	8	4	3	14	11	7.5	5	10	2.5	5	16	11	8	6	10	3	5	16	11
Italy	5	3	7	2	3	65	18	4	3	8	2	2	43	17	5	3	9	4	1	68	17
Japan	5	4	7	1	4	498	131	5	4	8	3	2	508	132	5	4	10	3	2	588	135
Netherlands	5	2	8	4	1	53	21	5	3	12	4	1	49	21	9	5	13	8	1	47	20
New Zealand	7	6	9	1	6	12	0	7	6	10	2	5	13	1	6	4	9	3	3	18	2
Norway	5	4	6	1	4	21	9	5	4	6	1	4	22	10	7	5	10	3	4	21	11
Portugal	6	4	7	3	3	15	6	6	4	8	3	3	13	5	6	3	8	4	2	14	5
Singapore	8	6	12	4	4	52	14	9	6	12	7	2	58	19	7	4	11	5	2	63	19
Spain	7	4	10	5	2	56	13	6	2	10	1	2	37	13	6	4	11	5	1	54	12
Sweden	6	4	10	4	2	44	5	5	9	6	6	4	45	5	7	4	10	5	2	41	5
Switzerland	5	3	11	3	2	58	24	5	3	11	3	2	55	23	7	3	12	5	2	58	23
UK	7	4	10	6	1	200	105	8	4	11	5	3	205	106	8	5	12	7	1	532	133
USA	10	4	16	9	1	480	0	10	5	16	8	2	476	0	11	6	15	8	3	479	0
Global Average	6.35	4.00	9.00	3.96	2.39	96	24.6	6.28	4.35	9.57	3.89	2.48	93	24	6.83	4.30	10.52	4.65	2.17	117	27

Notes: The table presents summary statistics for governance characteristics of our sample of U.S. and foreign firms over the period 2003–2005. The sample consists of over 2701 firms in 23 countries. The data is obtained from ISS. The U.S. sample consists of the S&P 500 firms to make it comparable with the rest of the sample. CG index is the equally-weighted sum of 17 provisions including (i) no dual class structure with unequal voting rights, (ii) cumulative voting, (iii) no supermajority required to approve merger, (iv) no supermajority required to amend bylaws and charter, (v) no classified board, (vi) shareholders can call special meetings, (vii) shareholders can act by written consent, (viii) no blank check or poison pill, (ix) CEO not on more than 2 boards, (x) CEO and Chairman are separated, (xi) majority of board is independent, (xii) audit committee is independent, (xiii) compensating committee is independent, (xiv) nominating committee is independent, (xv) governance committee exists, (xvi) no interlocked directors, and (xvii) policy on outside directorships exists. Each attribute assigns a score of 1 if applicable and zero otherwise. The index ranges from 0 to 17. We present the median value, the minimum value, and the maximum value of the country of the firm-level CG index (CG Index). We also present the median value of the country adjusted corporate governance index (Adjusted CG Index) and the country governance score (Country CG Index). The country governance score (Country CG) is the equally weighted sum of the attributes that are accepted by all firms in a given country. If all firms in a country have a specific governance provision in place then the index takes a value 1 for that provision. The country governance index (Country CG Index) is the sum of all the minimum standard provisions. The adjusted firm-level corporate governance index (Adjusted CG Index) is equal to the firm governance index (CG Index) minus the country-level minimally accepted governance score (Country CG Index). N is the total number of firms in our sample for each country. The variable ADRs gives the number of firms that have ADRs. Summary statistics are reported for each of the countries in our sample for the period 2003 to 2005.

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Table 2
Summary of individual components of CG Index (averaged over 2003–2005).

Country	No dual class shares with unequal voting rights	Cumulative voting	No supermajority required for merger	No supermajority required to amend bylaws	No classified board	Shareholders can call special meeting	Shareholders can act with written consent	No blank check or poison pill
Australia	95%	0%	1%	1%	1%	99%	32%	100%
Austria	100%	0%	0%	0%	2%	100%	0%	100%
Belgium	97%	1%	1%	1%	0%	99%	3%	88%
Canada	72%	4%	67%	0%	98%	100%	4%	32%
Denmark	70%	1%	0%	0%	56%	100%	0%	100%
Finland	69%	2%	0%	0%	83%	97%	0%	100%
France	40%	94%	0%	0%	2%	99%	27%	84%
Germany	100%	0%	1%	5%	0%	97%	1%	100%
Greece	100%	0%	0%	99%	48%	100%	0%	100%
Hong Kong	100%	97%	100%	24%	5%	96%	97%	100%
Ireland	7%	100%	100%	100%	47%	0%	0%	0%
Italy	99%	10%	3%	3%	1%	97%	0%	100%
Japan	100%	0%	0%	0%	36%	100%	100%	100%
Netherlands	77%	1%	30%	23%	4%	100%	3%	54%
New Zealand	100%	2%	0%	0%	0%	100%	35%	100%
Norway	97%	0%	0%	0%	19%	100%	0%	100%
Portugal	88%	40%	7%	0%	17%	100%	69%	100%
Singapore	99%	36%	64%	64%	0%	88%	34%	100%
Spain	95%	64%	0%	0%	16%	100%	54%	99%
Sweden	45%	0%	2%	0%	98%	100%	0%	100%
Switzerland	99%	0%	0%	0%	9%	100%	2%	99%
UK	99%	0%	0%	0%	5%	100%	97%	100%
USA	96%	9%	60%	38%	41%	41%	39%	38%

Country	CEO not on more than 2 boards	CEO chairman separated	Majority independent board	Audit committee independent	Compensating committee independent	Nominating committee independent	Governance committee exists	No interlocked directors	Policy on outside directorships
Australia	93%	82%	55%	38%	29%	19%	17%	83%	0%
Austria	92%	100%	7%	0%	0%	0%	3%	7%	0%
Belgium	90%	78%	10%	6%	9%	7%	4%	10%	0%
Canada	94%	61%	87%	83%	65%	55%	92%	100%	1%
Denmark	89%	80%	26%	3%	3%	0%	0%	14%	3%
Finland	77%	71%	37%	19%	17%	12%	7%	29%	0%
France	50%	45%	24%	16%	10%	6%	10%	16%	0%
Germany	59%	90%	20%	1%	1%	0%	10%	25%	0%
Greece	95%	47%	3%	5%	0%	0%	5%	4%	0%
Hong Kong	85%	60%	6%	47%	8%	4%	2%	9%	0%
Ireland	98%	30%	37%	50%	37%	15%	22%	37%	2%
Italy	68%	63%	6%	5%	3%	0%	11%	28%	0%
Japan	99%	0%	1%	1%	0%	0%	0%	1%	0%
Netherlands	87%	91%	38%	25%	26%	21%	17%	37%	3%
New Zealand	98%	74%	37%	26%	9%	0%	19%	93%	0%
Norway	100%	91%	23%	9%	14%	2%	3%	11%	0%
Portugal	81%	38%	12%	7%	2%	0%	12%	14%	0%
Singapore	88%	75%	47%	47%	20%	17%	2%	31%	0%
Spain	94%	43%	7%	7%	10%	10%	39%	7%	2%
Sweden	88%	92%	35%	9%	6%	1%	2%	18%	0%
Switzerland	84%	64%	35%	25%	18%	9%	15%	32%	0%
UK	98%	15%	34%	65%	66%	24%	6%	54%	16%
USA	92%	27%	97%	91%	93%	83%	100%	100%	23%

Notes: This table displays reports for each of the components included in the CG index the percentage of firms in the country that satisfies the attribute indicated in the first row. The statistics are averages for the period 2003 through 2005.

France and Germany being notable exceptions. CEO and Chairman of the Board tend to be separated at firms in Austria, Germany, the Netherlands, Norway, and Sweden, but tend not to be separated in the UK, Japan, and the U.S. Independent boards are commonplace in Canada and the U.S. but are

virtually non-existing in Japan, Greece and Italy. Independent audit, compensating, nominating, and governance committees exists at most firms in the U.S. but are virtually non-existent in Japan and Germany. Interlocked directors are not allowed at most firms in the U.S., but are commonplace in Japan and Greece. Finally, few firms have a policy on outside directorships.

Table 2 highlights the importance of considering multiple provisions as we do in our composite CG index. Still, in what follows we also present regressions based on each of the individual governance provisions.

Table A compares governance attributes that are satisfied by all firms in the country with existing country laws regarding these governance attributes. Our analysis focuses on governance practices that represent "corporate norms" that are accepted by all firms in a given country irrespective of the applicable law in the country. Practices may differ from existing laws for a number of reasons. Importantly, laws often permit firms to deviate from default rules. Also, laws may not be enforced. Still, we would like to know how much overlap there exists between common practices (as captured by the Country CG Index) and laws in the country. To this end we collect information on applicable governance laws in our sample of countries from Spamann (2006), who updates the shareholder rights index developed by La Porta et al. (1998). Only two of the attributes we consider – dual class shares (or one-share/one vote) and cumulative voting – are directly comparable with the laws collected by Spamann. Table A summarizes the existence of rules and practices on these two governance attributes. Following Spamann, we make a distinction between mandatory rules and default rules that allow companies to deviate from that rule by stipulation in its charter or bylaws.

We find that there exist considerable differences between rules and common practices. While all countries in our sample apply the principle of one share-one vote as default rule, such rules are mandatory only in Germany and Greece. Data on actual practices show that many firms opt to deviate from the default rules in countries where these rules are not mandatory.[15] These data highlight that there are important differences between default rules on governance as stipulated in laws and actual practices by firms, supporting our approach of focusing on actual adoption of governance attributes in the corporate charter or bylaws.[16]

3. Empirical results

3.1. Regression model

Our basic regression model looks as follows:

$$Q_{ijt} = \alpha_j + \alpha_k + \alpha_t + \beta(CG_{ijt} - \overline{CG_{jt}}) + \gamma \overline{CG_{jt}} + \delta X_{ijt} + \varepsilon_{ijt}, \tag{1}$$

where Q_{ijt} denotes the Tobin's Q of firm i in country j at year-end t, α_j denotes a country-fixed effect, α_k denotes an industry-fixed effect, α_t denotes a year-fixed effect, CG_{ijt} denotes the corporate governance index of firm i at year-end t, $\overline{CG_{jt}}$ denotes the minimally accepted governance score for all firms in country j at year-end t, X_{ijt} denotes a set of firm-level control variables, and ε_{ijt} denotes the error term with the usual distributional assumptions. Table 3 presents the summary statistics of the main regression variables.

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[15] For example, in France, 60 percent of firms have dual class shares with unequal voting rights and do not apply the principle of one share-one vote. In Germany and Greece, where one share-one vote is a mandatory rule, all firms in our sample comply with this rule. Contrary to the principle of one share-one vote, cumulative voting is infrequently adopted as a default rule. Cumulative voting is the default rule only in Japan and Spain, and a mandatory rule only in Spain. Still, only 64 percent of firms in Spain permit cumulative voting, suggesting that these rules are not well enforced. Also, there exist countries like France and Ireland were cumulative voting is frequently adopted in corporate bylaws but not the default rule.

[16] We check for the correlation between our proxy for country governance norms, Country CG Index, and various proxies for country governance required by law, including the Anti Director Rights index developed by La Porta et al. (1998) and revised by Spamann (2006) and the Anti Self Dealing Index developed by Djankov et al. (2008). We find that the correlation between our Country CG index and each of these measures of investor protection is less than 10 percent and statistically insignificant. This supports our assertion that the Country CG Index largely captures norms rather than law.

Table 3

Summary statistics of main regression variables.

	2003			2004			2005			2003–2005		
	Mean	Median	Sd	Mean	Median	Sd	Mean	Median	Sd	Mean	Median	Sd
CG Index	7.09	6	2.56	7.43	7	2.63	7.74	7	2.49	7.74	7	2.57
Adjusted CG Index	5.03	4	3.47	5.43	4	3	5.74	5	2.44	5.42	5	2.98
Country CG Index	2.07	2	1.48	1.99	2	1.02	1.99	2	1.04	2.02	2	1.19
Q	1.53	1.18	0.97	1.61	1.29	0.99	1.66	1.33	1.02	1.6	1.27	0.99
Log of sales	13.13	13.88	2.83	13.24	14.05	2.89	13.38	13.92	2.67	13.26	13.94	2.78
Sales growth	0.04	0.05	0.32	0.14	0.13	0.21	0.16	0.14	0.25	0.12	0.12	0.26
Leverage	0.21	0.18	0.19	0.2	0.17	0.19	0.19	0.16	0.19	0.2	0.16	0.19
External financing	0.84	1.1	7.39	1.03	1.21	4.24	1.07	1.22	2.62	0.98	1.18	5.01
Financial dependence	0.062	−0.062	1.11	0.019	0.18	1.65	0.33	0.054	1.11	0.15	0.035	1.31

Notes: This table reports summary statistics for 2003–2005 and each year for the main firm-level regression variables. CG Index is the equally-weighted sum of 17 provisions including (i) no dual class structure with unequal voting rights, (ii) cumulative voting, (iii) no supermajority required to approve merger, (iv) no supermajority required to amend bylaws and charter, (v) no classified board, (vi) shareholders can call special meetings, (vii) shareholders can act by written consent, (viii) no blank check or poison pill, (ix) CEO not on more than 2 boards, (x) CEO and Chairman are separated, (xi) majority of board is independent, (xii) audit committee is independent, (xiii) compensating committee is independent, (xiv) nominating committee is independent, (xv) governance committee exists, (xvi) no interlocked directors, and (xvii) policy on outside directorships exists. Each attribute assigns a score of 1 if applicable and zero otherwise. The index ranges from 0 to 17. The Adjusted CG Index is the firm level CG Index minus the country-level minimally accepted governance score Country CG Index. The country governance score Country CG Index is the equally weighted sum of the attributes that are accepted by all firms in a given country. If all firms in a country have a specific governance provision in place then the index takes a value 1 for that provision. Country CG Index is the sum of all the minimum standard provisions. Q is the Tobin's Q ratio measured as the ratio of market to book value of assets. The market value of assets is calculated as the sum of the book value of assets plus the market value of common stock less the book value of common stock. Log of sales is the natural logarithm of sales. Sales growth is lagged net sales growth. Leverage is the ratio of debt to total assets. External financing is the proxy for financing constraints developed by Demirguc-Kunt and Maksimovic (1998). External financing is the difference between required capital and available capital. Required capital is measured by the growth rate of total assets and available capital as $ROE/(1 − ROE)$, where ROE is the return on equity capital. Financial dependence is the measure of external financial dependence developed by Rajan and Zingales (1998) but computed at the firm level. For each firm, we compute financial dependence as the median value of financial dependence of a closely matched sample of the universe of U.S. listed firms. We match firms on the basis of sales and 2-digit SIC industry codes. External financial dependence is computed as the difference between capital expenditures and cash flow divided by capital expenditures.

3.2. Main results

Table 4 presents our main regression results. The dependent variable in each regression is the firm's Tobin's Q. All regressions include country, industry, and year fixed-effects but we only report the year effects. The first regression includes our CG Index and a set of firm-level control variables commonly used in the literature. The results are presented in column (1). We find a positive relation between corporate governance scores and firm valuation (as measured by Tobin's Q), consistent with prior evidence on the effect of governance of U.S. firms (e.g., Gompers et al., 2003). Our results suggest that the inference drawn from U.S. firms can be generalized to other countries. A one standard deviation increase in our firm-level governance score is associated with a 0.07 increase in Tobin's Q, a modest though not insignificant effect compared to a sample standard deviation of 0.99 for Tobin's Q.

The year effects indicate that Tobin's Q is on average increasing over time, although the effect is not statistically significant. This could be partly driven by the fact that governance scores have also increased over this period in most countries in our country, from an average of 7.09 in 2003 to an average of 7.74 in 2005. Firms with an ADR listing also tend to be more highly valued, consistent with the notion that many of these foreign firms are subject to higher governance standards in the U.S. Finally, we find that firms tend to be valued higher if they are smaller (as measured by sales), have better growth opportunities (as measured by sales growth), depend less on external financing, and are less levered.

Next, we consider the effect on Tobin's Q of deviations in governance scores from the norms-based Country CG Index. Consistent with our priors, we find that governance provisions adopted by

Table 4
Corporate governance and firm valuation.

Variable	(1)	(2)	(3)	(4) Firm cluster	(5) Interaction	(6) U.S. firms	(7) Non-U.S. firms
CG Index	0.030*** (0.004)						
Adjusted CG Index		0.027** (0.01)	0.027*** (0.007)	0.027** (0.01)	0.029*** (0.013)	0.027*** (0.015)	0.023*** (0.007)
Country CG Index			0.010 (0.021)	0.010 (0.014)	0.008 (0.016)	−0.073* (0.041)	0.031** (0.014)
Adjusted CG Index × Country CG Index					0.0004 (0.005)		
Log sales	−0.113*** (0.027)	−0.113*** (0.027)	−0.113*** (0.027)	−0.113*** (0.024)	−0.113*** (0.027)	−0.262*** (0.028)	−0.091*** (0.023)
Sales growth	0.331*** (0.095)	0.327*** (0.096)	0.327*** (0.095)	0.327*** (0.071)	0.328*** (0.097)	0.728*** (0.171)	0.240*** (0.073)
External financing	−0.006** (0.002)	−0.006** (0.002)	−0.007** (0.002)	−0.007** (0.002)	−0.007** (0.002)	−0.008 (0.006)	−0.005** (0.003)
Leverage	−0.005* (0.002)	−0.004* (0.002)	−0.005* (0.002)	−0.005* (0.001)	−0.005*** (0.003)	−1.830*** (0.268)	−0.006** (0.002)
Dummy for ADRs	0.162*** (0.05)	0.166*** (0.05)	0.163*** (0.05)	0.163*** (0.04)	0.162*** (0.05)		0.135*** (0.05)
Year = 2004	0.057 (0.04)	0.053 (0.04)	0.053 (0.03)	0.053** (0.02)	0.052 (0.04)	0.075 (0.07)	0.106*** (0.02)
Year = 2005	0.081 (0.05)	0.079* (0.04)	0.079* (0.04)	0.078** (0.02)	0.077 (0.05)	0.061 (0.05)	0.141*** (0.03)
Industry dummies	+	+	+	+	+	+	+
Country dummies	+	+	+	+	+	−	+
N	6134	6134	6134	6134	6134	1113	5021
R^2	0.25	0.25	0.25	0.25	0.25	0.35	0.25

Notes: The table shows OLS regressions with Tobin's Q as dependent variable for the sample period 2003–2005. The CG Index is the firm level corporate governance score. The Adjusted CG Index is the difference between the CG Index and the country-level CG Country Index. Country CG Index is the equally weighted sum of the attributes that are accepted by all firms in a given country. Log sales is the logarithm of net sales. Sales growth is the growth of sales and proxies for investment opportunities. External financing is the difference between asset growth and ROE/(1 − ROE). Leverage is the ratio of the sum of long term and short term debt to assets. The ADR dummy takes value 1 if the firm has a ADR and 0 otherwise. Country, industry, and year fixed effects are included in each regression but we only report coefficients on the year effects. Standard errors are clustered at the country level, except in regression (4) where they are clustered at the firm level. Regression (6) is based on the sample of U.S. firms only and regression (7) is based on the sample of non-U.S. firms only.

* Significance at the 10% level.
** Idem, 5% level.
*** Idem, 1% level.

firms beyond those imposed by the "norms" in the country (as measured by the Country CG Index) have a strong, positive effect on firm valuation. The coefficient on the Adjusted CG Index variable is statistically significant at the 5% level. A one standard deviation increase in the Adjusted CG score is associated with a 0.08 increase in Tobin's Q, equivalent to about one-tenth the sample standard deviation of Tobin's Q.

Some may consider our definition of governance norms as somewhat restrictive because we require adoption of a given provision by all firms in the country. An alternative approach would be to define a provision as a norm if a large fraction of firms adhere to it, say 90 or 95 percent of firms. We therefore rerun the regression (2) in Table 4 using different cutoffs for the definition of the norm. As cutoffs we use either 90 percent or 95 percent of firms, meaning that if 90 or 95 percent of the firms satisfy a criterion then the country index is assigned that value. Our results are qualitatively similar (though the statistical significance for the Adjusted CG Index increases somewhat and is now significant at the 1% level) (not reported).

In regression (3), we also include the Country CG Index. This variable enters with a positive but insignificant coefficient. Because the regressions also include country-fixed effects, it may be hard to identify the independent effect of the Country CG Index on firm valuations, particularly given that

there is little variation over time in the Country CG Index in some countries. In unreported regressions, we drop country fixed effects from regression (3) and obtain similar results: the Adjusted CG Index enters with a positive and significant sign and the Country CG Index does not enter significantly.

Thus far, we have reported regressions with standard errors clustered at the country level. It could be that observations for a given firm are not independent across time. If this were the case, our standard errors would be underestimated. However, as indicated by regression (4), our results do not alter when we cluster standard errors at the firm level. It is also possible that errors are correlated both across time and firms. Measurement error arising from a combination of cross-sectional correlation and time-series correlation is quite common in Tobin's Q regressions, as pointed out by Petersen (forthcoming). He suggests that one way of dealing with these issues is to cluster standard errors in both dimensions at the same time. We first rerun our main regression in Table 4 using clustered standard errors at the firm and year level. As a robustness check we rerun this regression using errors clustered at the firm and country level, because in cross country studies errors might also be correlated across firms in the same country. In both cases, however, the results are qualitatively similar to those reported in Table 4, and remain statistically significant (not reported).

Next, we investigate whether the effect of the Adjusted CG Index on firm valuation depends on the level of the Country CG Index. It could be that firms are less inclined to deviate from the governance norm in the country if this norm is already high. In regression (5), we include an interaction between the Adjusted CG Index and the Country CG Index variables. The interaction term does not enter significantly and its inclusion does not alter our main results.

Stock market liquidity could affect firm valuation. In unreported regressions, we have also controlled for stock market liquidity (proxied by stock market turnover), but again our results are not affected.

In regressions (6) and (7) we split the sample between U.S. and non-U.S. firms to study whether the U.S. results can be generalized to other countries. While we find qualitatively similar effects of the Adjusted CG Index on firm valuation for U.S. and non-U.S. firms, we find that the Country CG Index has a positive effect on firm valuation only for non-U.S. firms. It may be hard to identify the effect of Country CG Index on Tobin's Q for U.S. firms because the U.S. effect is identified based on only three years of data, generating only three country-level observations for the Country CG Index variable. The economic effect of Country CG Index on Tobin's Q for non-U.S. firms is about half that for the Adjusted CG Index variable. A one standard deviation increase in the Country CG Index score is associated with a 0.04 increase in Tobin's Q.

Next, we run our main regression for each year in the sample period 2003–2005, following Gompers et al. (2003). The results of these annual cross-sectional regressions are presented in Table 5. The coefficients and standard errors from each annual cross-sectional regression are reported in each column, and the time-series averages and time-series standard errors are given in the last column. The Country CG Index variable is dropped from these annual regressions that already include country dummies. We find that the effect of within country variation in governance on firm valuation is present in all years and most pronounced for the year 2005 (although the effects are not statistically different across years). For the year 2005, a one standard deviation increase in the Adjusted CG Index is associated with a 0.10 increase in Tobin's Q. The last column of the table reports the time-series averages of the regression coefficients. The estimated average coefficient of 0.036 indicates that a one standard deviation increase in Adjusted CG Index is associated with a 0.11 increase in Tobin's Q.

4. Robustness tests and extensions

Next, we report several robustness tests and extensions of our main results presented in Table 4.

4.1. Individual components of the corporate governance index

In Table 6, we repeat our main regression using the individual components of the Adjusted CG Index instead of the composite index. We find that all individual components of this index enter

Table 5
Corporate governance and firm valuation: cross-sectional regressions.

	2003	2004	2005	Average 2003–2005
Country Adjusted CG Index	0.029[**]	0.037[**]	0.041[***]	0.036[**]
	(0.010)	(0.015)	(0.012)	(0.012)
Log sales	−0.109[***]	−0.125[***]	−0.121[***]	−0.118[***]
	(0.036)	(0.037)	(0.023)	(0.032)
Sales growth	0.433[***]	0.593[**]	0.170	0.399[**]
	(0.068)	(0.217)	(0.111)	(0.132)
External financing	−0.008[***]	−0.008[**]	−0.002	−0.006[**]
	(0.002)	(0.004)	(0.004)	(0.003)
Leverage	−0.002	−0.004[*]	−0.006[**]	−0.004[*]
	(0.002)	(0.002)	(0.002)	(0.002)
Dummy for ADRs	0.196[***]	0.133[**]	0.140[***]	0.156[**]
	(0.058)	(0.063)	(0.044)	(0.055)
Industry dummies	+	+	+	
Country dummies	+	+	+	
N	1939	1872	2323	
R^2	0.30	0.26	0.22	

Notes: The table shows the results of firm-level OLS regressions with Tobin's Q as dependent variable for each year in the sample period 2003–2005. The coefficients and standard errors from each annual cross-sectional regression are reported in each column, and the time-series averages and time-series standard errors are given in the last column. The Country Adjusted CG Index the difference between the firm-level CG Index and minimally accepted country-level CG score. Log sales is the logarithm of net sales. Sales growth is the growth of sales and proxies for investment opportunities. External financing is the difference between asset growth and ROE/(1 − ROE). Leverage is the ratio of the sum of long term and short term debt to assets. The ADR dummy takes value 1 if the firm has a ADR and 0 otherwise. Country and industry fixed effects are included in each regression but not reported. Standard errors are clustered at the country level.

[*] Significance at the 10% level.

[**] Idem, 5% level.

[***] Idem, 1% level.

positively, consistent with our main result. However, not all subcomponents of the index enter significantly. The results indicate that the effect can largely be accounted for by differences in six governance attributes: cumulative voting, no blank check or poison pill, majority independent board, independent audit committee, no interlocked directors, and existence of a policy on outside directorships. The presence of dual class shares with unequal voting and the existence of a governance committee also enter with a large coefficient but their effects are not statistically significant. We find similar results when we include individual components of the composite Country CG Index in these regressions, although the statistical significance of the effect drops somewhat in a few cases. For three attributes (Majority independent board, Compensating committee independence, and Policy on outside directorships) there is insufficient variation in the Country CG Index such that the effect is fully absorbed by the country dummies and we cannot estimate the effect of the individual Country CG Index. We also find similar results when we repeat these regressions using the unadjusted, individual components of the CG Index (not reported).

4.2. Sample selection issues

Thus far, we have reported regressions for the full, unbalanced sample. We are concerned that the unbalanced panel may introduce a selection bias that could drive the results. For example, both the number of firms included in our sample and the average governance score increase over the sample period. We therefore re-run our main specification for a balanced sample. The results are reported in column (1) of Table 7. We find that the results based on the balanced panel are very similar to those obtained for the unbalanced panel. We again find a positive and significant association between the Adjusted CG Index and Tobin's Q.

Next, we drop countries with fewer than 10 observations. There is likely to be little within-country variation in countries with few observations, and the sample of firms included may not be representative for these countries. Since our identification on the governance variable stems largely from

Table 6

Corporate governance and firm valuation: individual CG Index components.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No dual class shares with unequal voting (adjusted)	0.095 (0.088)							
Cumulative voting (adjusted)		0.044[*] (0.048)						
No supermajority for merger (adjusted)			0.032 (0.041)					
No supermajority to amend bylaws (adjusted)				0.035 (0.041)				
No classified board (adjusted)					0.036 (0.023)			
Shareholder can call special meeting (adjusted)						0.007 (0.032)		
Shareholder can act without written consent (adjusted)							0.062 (0.046)	
No blank check or poison pill (adjusted)								0.045[*] (0.04)
Log sales	−0.112[***] (0.027)	−0.113[***] (0.027)	−0.113[***] (0.027)	−0.114[***] (0.028)	−0.113[***] (0.027)	−0.113[***] (0.027)	−0.114[***] (0.027)	−0.113[***] (0.027)
Sales growth	0.329[**] (0.096)	0.330[***] (0.096)	0.330[***] (0.094)	0.330[***] (0.096)	0.327[***] (0.095)	0.329[***] (0.096)	0.331[***] (0.096)	0.330[***] (0.097)
External financing	−0.006[**] (0.002)	−0.007[**] (0.002)	−0.007[**] (0.002)	−0.007[**] (0.002)	−0.007[**] (0.002)	−0.007[**] (0.002)	−0.007[**] (0.002)	−0.007[**] (0.002)
Leverage	−0.004[**] (0.002)	−0.005[**] (0.002)	−0.005[**] (0.002)	−0.005[**] (0.002)	−0.005[**] (0.002)	−0.005[**] (0.002)	−0.005[**] (0.002)	−0.005[**] (0.002)
Dummy for ADRs	0.171[***] (0.05)	0.171[***] (0.05)	0.171[***] (0.05)	0.171[***] (0.05)	0.168[***] (0.05)	0.171[***] (0.05)	0.172[***] (0.05)	0.171[***] (0.05)
Year = 2004	0.065 (0.039)	0.061 (0.037)	0.072[**] (0.036)	0.070[*] (0.039)	0.065 (0.039)	0.065 (0.039)	0.065 (0.039)	0.065 (0.039)
Year = 2005	0.101[**] (0.047)	0.104[**] (0.048)	0.106[**] (0.042)	0.103[**] (0.046)	0.096[*] (0.049)	0.102[**] (0.047)	0.097[**] (0.046)	−0.109[**] (0.035)
Industry dummies	+	+	+	+	+	+	+	+
Country[*] year dummies	+	+	+	+	+	+	+	+
N	6134	6134	6134	6134	6134	6134	6134	6134
R^2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

Table 6
(*continued*)

Variable	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
CEO not on more than 2 boards (adjusted)	0.005 (0.041)							
CEO and Chairman separated (adjusted)		0.037 (0.062)						
Majority independent board (adjusted)			0.086*** (0.028)					
Audit committee independence (adjusted)				0.094** (0.039)				
Compensating committee independence (adjusted)					0.004 (0.032)			
Nominating committee independence (adjusted)						0.045 (0.047)		
Governance committee exists (adjusted)							0.097 (0.071)	
No interlocked directors (adjusted)								0.088 (0.053)
Policy on outside directorships (adjusted)								
Log sales	−0.113*** (0.027)	−0.112*** (0.027)	−0.116*** (0.027)	−0.114*** (0.027)	−0.113*** (0.027)	−0.113*** (0.027)	−0.114*** (0.027)	−0.112 (0.027)
Sales growth	0.329** (0.096)	0.329*** (0.096)	0.364*** (0.096)	0.334*** (0.096)	0.329*** (0.095)	0.329*** (0.096)	0.333*** (0.096)	0.332 (0.096)
External financing	−0.006** (0.002)	−0.006** (0.002)	−0.007** (0.002)	−0.007** (0.002)	−0.007** (0.002)	−0.007** (0.002)	−0.007** (0.002)	−0.007 (0.002)
Leverage	−0.004** (0.002)	−0.005** (0.002)	−0.007** (0.002)	−0.005** (0.002)	−0.005** (0.002)	−0.005** (0.002)	−0.005* (0.002)	−0.005 (0.002)
Dummy for ADRs	0.171*** (0.05)	0.17*** (0.05)	0.162*** (0.05)	0.165*** (0.05)	0.171*** (0.05)	0.17*** (0.05)	0.166*** (0.05)	0.169 (0.05)
Year = 2004	0.064 (0.045)	0.065* (0.039)	−0.007** (0.002)	0.064 (0.04)	0.065** (0.038)	0.063 (0.043)	0.061 (0.04)	0.085 (0.025)
Year = 2005	0.100* (0.047)	0.101** (0.047)	−0.007** (0.002)	0.093* (0.047)	0.101** (0.046)	0.098* (0.05)	−0.096** (0.048)	0.106 (0.041)
Industry dummies	+	+	+	+	+	+	+	+
Country dummies	+	+	+	+	+	+	+	+
N	6134	6134	6134	6134	6134	6134	6134	6134
R^2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

Notes: The table shows the results of firm-level OLS regressions for the period 2003–2005 with Tobin's Q as dependent variable and one of the CG Index components as main explanatory variable for each year in the sample period 2003–2005. Log sales is the logarithm of net sales. Sales growth is the growth of sales and proxies for investment opportunities. External financing is difference between asset growth and ROE/(1 − ROE). Leverage is the ratio of the sum of long term and short term debt to assets. The ADR dummy takes value 1 if the firm has a ADR and 0 otherwise. Country, industry, and year fixed effects are included in each regression but we only report coefficients on the year effects. Standard errors are clustered at the country level.

* Significance at the 10% level. ** Idem, 5% level. *** Idem, 1% level.

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Table 7
Corporate governance and firm valuation: robustness checks.

Variable	Balanced sample	Excluding countries with few observations	Board size
Adjusted CG Index	0.027***	0.030***	0.029***
	(0.008)	(0.007)	(0.007)
CG Country Index	0.006	0.009	0.011
	(0.02)	(0.02)	(0.021)
Log sales	−0.113***	−0.113***	−0.110***
	(0.036)	(0.027)	(0.026)
Sales growth	0.413***	0.354***	0.327***
	(0.101)	(0.094)	(0.095)
External financing	−0.006**	−0.007**	−0.007**
	(0.002)	(0.002)	(0.002)
Leverage	−0.004*	−0.005*	−0.005*
	(0.002)	(0.002)	(0.002)
Board size			−0.005
			(0.006)
Dummy for ADRs	0.162***	0.161***	0.162***
	(0.05)	(0.05)	(0.05)
Year = 2004	0.033	0.048	0.053
	(0.04)	(0.04)	(0.04)
Year = 2005	0.059	0.075	0.079
	(0.05)	(0.05)	(0.05)
Industry dummies	+	+	+
Country dummies	+	+	+
N	5183	6043	6134
R^2	0.27	0.27	0.25

Notes: The table shows robustness checks to regressions in Table 4. The CG Index Deviation from Country Average is a firm CG score minus the country-average CG score. Sales growth is the growth of sales and proxies for investment opportunities. External financing is the difference between asset growth and ROE/(1 − ROE). Leverage is the ratio of the sum of long term and short term debt to assets The CG minimum score is the minimum score of the CG scores in the country. The CG maximum score is the maximum score of the CG scores in the country. Board size is the board size of the firm based on the classification in the ISS data. The Industry CG score is the average CG score for each industry (averaged across firms in different countries). The CG Index Deviation from Industry Score is the firm CG index above the industry CG score. The ADR dummy takes value 1 if the firm has a ADR and 0 otherwise. Country, industry, and year fixed effects are used in all the regressions. Standard errors are clustered at the country level.

* Significance at the 10% level.
** Idem, 5% level.
*** Idem, 1% level.

within-country variation, we need to have a representative and sufficiently large number of firms in each country. When we exclude countries with few observations, we again obtain very similar results (column (2) of Table 7).

4.3. Board size

Previous literature has shown that corporate performance may not only be affected by governance provisions but also by board size (e.g., Yermack, 1996).[17] We therefore perform a robustness test that includes a proxy for board size.

To construct a measure of board size of the firm we use data from ISS on the number of members on the board of each firm. Unfortunately, ISS does not report the exact size of the board, but rather classifies boards in different size categories. These categories are: (a) board size less than 6; (b) board size between 6 and 8; (c) board size between 9 and 12; (d) board size between 13 and 15; and (e) board size greater than 15. Where possible, we use the midpoints of these size categories to

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[17] Ownership structure may also affect corporate valuation; unfortunately, we do not have detailed information on the ownership structure of firms in our sample. When we control for the percentage of shares that are closely held (obtained from Datastream) as a rough proxy for ownership structure of the firm, our main results are unaltered (not reported).

construct our board size variable.[18] The regression results with the board size variable are reported in column (3) of Table 7. Board size does not enter significantly. Importantly, our main results on the governance variables are not affected.

4.4. Endogeneity

We are concerned that endogeneity of the governance index variable could affect the results. For example, it could be that a third factor could drive both higher governance scores and firm valuations (see Demsetz and Lehn, 1985, for an early exposition of these endogeneity concerns; see also Black et al., 2006). Given the lack of suitable instruments, the literature thus far has not adequately dealt with these endogeneity concerns. Himmelberg et al. (1999) propose to use panel data techniques but these are rather ineffective given that corporate governance moves slowly over time and given that the time-series dimensions of the datasets used in this literature tend to be short (see Coles et al., 2006, for a more detailed description of the problems associated with addressing endogeneity concerns in this literature).

Like all other papers in the literature, we do not have a good instrument for firm-level governance, so we cannot perform instrumental variables (IV) regressions of Tobin's Q on corporate governance. Still, we can use GMM panel data techniques to mitigate concerns about endogeneity. In implementing the GMM estimations, we treat corporate governance scores as a predetermined variable and use lagged values of this variable as instruments. We estimate a dynamic model that includes a lag of Tobin's Q as explanatory variable. The model is estimated using the Arellano and Bond (1991) GMM difference estimator. All explanatory variables are treated as predetermined variables and we use all available lags of these variables as instruments.

We lag variables at least two periods to obtain valid instruments for this dynamic model. For non-U.S. firms in our sample we only have 3 years of data (2003–2005) but for U.S. firms we have 5 years of data (2001–2005) on governance scores. Unlike our previous regressions, where we only include U.S. firms included in the S&P 500 index (to make the sample of U.S. firms comparable to firms in other countries), we now use the full sample of U.S. firms (for the period 2001–2005) to take full advantage of the dataset. This does, however, not affect our results. All GMM regressions include year fixed effects. We exclude observations with extreme values for Tobin's Q, corresponding to the top and bottom 1 percentiles, because the dynamic model is quite sensitive to outliers in the dependent variable. The model also includes unobserved firm-specific effects but these drop out because the regressions are estimated in first differences.

Consistent with our earlier findings, we find that both the unadjusted CG Index and the Adjusted CG Index have a significant, positive effect on Tobin's Q (Table 8). The effect we find is much larger than that obtained in the OLS regressions. We also find that current values of Tobin's Q can in part be explained by lagged values of Tobin's Q. These results alleviate concerns about endogeneity and offer some evidence in support of a causal link between corporate governance and firm valuation. Still, we acknowledge that this tests only goes so far in addressing the issue of endogeneity and the results should be interpreted with that in mind.

4.5. Governance and external finance

Next, we investigate a specific channel through which governance may affect firm valuation: the need for external finance. Rajan and Zingales (1998) construct an industry-level measure of financial dependence that they interact with a country-level measure of financial development to explain growth in value added of a particular industry in a given country. Their approach has two advantages. By constructing a variable that is the interaction between a country-level variable and an industry-level variable, they can include country fixed effects in their regression model and by doing so account for omitted country-level variables that plague much of the cross-country growth literature. More important for our purpose, they also use U.S. data to construct a benchmark of financial dependence for

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[18] Specifically, Board size takes a value of: 5 if board size is less than 6; 7 if board size is between 6 and 8; 10 if board size is between 9 and 12; 14 if board size is between 13 and 15; and 16 if board size is greater than 15.

Table 8
Corporate governance and firm valuation: GMM estimations with lagged dependent variable.

	CG index (1)	Country adjusted CG index (2)
Lagged Tobin's Q	0.123[*]	0.121[*]
	(0.071)	(0.070)
Log sales	−0.831	−0.858
	(0.687)	(0.679)
Sales growth	−1.126[**]	−1.124[**]
	(0.469)	(0.499)
External financing	0.047	0.052
	(0.040)	(0.042)
CG Index	0.234[***]	
	(0.091)	
Adjusted CG Index		0.212[**]
		(0.091)
Country CG Index		0.020
		(0.555)
p-value of AR(1) test	0.00	0.00
p-value of AR(2) test	0.25	0.25
Year-fixed effects	Yes	Yes
Unobserved firm-specific effects	Yes	Yes
Number of firms	4669	4669
N	7795	7795

Notes: The table shows robustness checks to regressions in Table 3. We include a lag of Tobin's Q in all regressions. The regression is estimated using the GMM difference estimator developed by Arellano and Bond (1991). All explanatory variables are treated as predetermined variables, and we use all available lags of these variables as instruments. We exclude observations with $q > 25$ or $q < 0.5$ (roughly corresponding with top and bottom 1 percentile). This drops 18 observations. The CG Index is the firm CG score. The Country CG index is the country minimum standards CG score. The Country Adjusted CG Index is a firm CG score minus the Country CG score. Log sales is the natural logarithm of total sales. Sales growth is the growth of sales and proxies for investment opportunities. External financing is the difference between asset growth and ROE/(1 − ROE). Year fixed effects are used in all the regressions. The unobserved firm effects included in the regression specification drop out because the regression is estimated in first differences. We also report the serial correlation specification tests.

[*] Significance at the 10% level.
[**] Idem, 5% level.
[***] Idem, 1% level.

other countries. This approach rests on the assumption that financial markets in the U.S. do not face significant financial frictions and that the U.S. frontier is representative for other countries. Using the U.S. as a benchmark for financial dependence of industries elsewhere allows them to deal with some of the endogeneity concerns that plague the finance and growth literature.

We adopt the Rajan and Zingales approach to our setting where we focus on firm-level corporate governance, not country-level financial development. Assuming that firms that depend on external finance to finance their investment opportunities find it easier to obtain outside financing if they are better governed, we expect that firm-level improvements in governance as measured by our Adjusted CG Index are more important for the valuation of firms that depend on outside financing. Because the financial dependence of a particular firm in a given country may depend on a host of firm and country characteristics specific to this firm, such as the development of local financial markets, we construct an index of financial dependence for each firm based on U.S. data. Unlike Rajan and Zingales, who deal with industry-level data, we construct a firm-specific measure of financial dependence based on the financial dependence of a matched sample of U.S. firms. Specifically, we compute financial dependence for each firm as the median value of financial dependence of a closely matched sample of the universe of U.S. listed firms. We match firms on the basis of net sales and their 2-digit SIC industry codes. Following Rajan and Zingales, we compute external financial dependence as the difference between capital expenditures and cash flow divided by capital expenditures.

Table 9 reports regression results where we not only include the governance variables but also our measure of financial dependence and the interaction between Adjusted CG Index and financial dependence. We delete financial firms (SIC code 6) from these regressions because financial dependence

Table 9
Corporate governance and financial dependence.

Adjusted CG Index	0.030[***]
	(0.007)
Country CG Index	0.011
	(0.020)
Financial dependence	−0.016
	(0.021)
Adjusted CG Index × financial dependence	0.009[**]
	(0.004)
Log sales	−0.113[***]
	(0.026)
Sales growth	0.327[***]
	(0.099)
External financing	−0.008[***]
	(0.003)
Leverage	−0.005[**]
	(0.002)
Dummy for ADRs	0.160[***]
	(0.049)
Year = 2004	0.057
	(0.034)
Year = 2005	0.070
	(0.051)
Industry dummies	+
Country dummies	+
N	5609
R^2	0.26

Notes: The table shows OLS regressions with Tobin's Q as dependent variable for the sample period 2003–2005. The Adjusted CG Index is the difference between the firm level CG Index and the country-level CG Country Index. Country CG Index is the equally weighted sum of the attributes that are accepted by all firms in a given country. Log sales is the logarithm of net sales. Sales growth is the growth of sales and proxies for investment opportunities. External financing is the difference between asset growth and ROE/(1 − ROE), following Demirguc-Kunt and Maksimovic (1998). Leverage is the ratio of the sum of long term and short term debt to assets. The ADR dummy takes value 1 if the firm has a ADR and 0 otherwise. Tobin's Q is measured as the ratio of market to book value of assets. Financial dependence is the measure of external financial dependence developed by Rajan and Zingales (1998) but computed at the firm level. For each firm, we compute financial dependence as the median value of financial dependence of a closely matched sample of the universe of U.S. listed firms. We match firms on the basis of sales and 2-digit SIC industry codes. External financial dependence is computed as the difference between capital expenditures and cash flow divided by capital expenditures. We delete financial firms (SIC code 6) from the regressions as financial dependence measures for these firms are not comparable to non-financial firms. The regressions include country and industry fixed effects. Standard errors are clustered at the country level.

[**] Significance at the 5% level.
[***] Idem, 1% level.

measures for these firms are not comparable to non-financial firms. The regressions include country and industry fixed effects. We find a positive coefficient on the interaction term between financial dependence and Adjusted CG Index, consistent with our priors. Financially dependent firms are valued disproportionately more if they have high governance scores, relative to the norm in the country. These results offer evidence in support of a specific channel through which corporate governance affects firm valuation, namely by improving the ability to raise external financing.

4.6. Reverse causality: industry-specific shocks

Next, we investigate whether there is reverse causality between valuation and governance at the firm level. If we do not find strong reverse causality, then this would lend additional support to a causal interpretation of our results. There are several reasons to believe that Tobin's Q could affect governance scores. For example, it could be that highly valued firms are more likely to invest in better governance. Also, countries with highly valued firms may be more likely to engage in reforms to improve corporate governance.

To test for the presence of reverse causality, we regress corporate governance scores on Tobin's Q. This reverse regression of our main specification can reveal whether reverse causality is likely to be an issue or not. Following Bertrand and Mullainathan (2003), we perform these regressions not only for the whole sample but also for oil price sensitive industries, using the oil price as instrument for Tobin's Q to capture the independent effect of Tobin's Q on governance scores. Bertrand and Mullainathan (2003) focus only on the energy sector, an industry whose performance clearly depends on changes in the oil price. The assumption is that any given firm is too small to affect the world price of oil but changes in the oil prices do affect firm performance. They use the oil price as an industry-specific shock to separate out CEO compensation in the energy sector caused by performance and by luck. We extend their methodology to other industries by computing the historical out-of-sample sensitivity of firm performance (as measured by Tobin's Q) to oil prices.[19] The industry-level estimates of these oil price sensitivities, denoted as βs, are reported in Table B. Obviously, this approach works best for industries most dependent on the oil price, such as the energy sector. We therefore report regression not only for the entire sample, but also for the sample of firms operating in industries with above median oil price βs and for firms operating in the energy sector. For comparison purposes, we report both the OLS and IV regressions.

Columns (1) to (3) of Table 10 present the OLS regressions for the different samples. The whole sample regression results reported in column (1) suggest that reverse causality may be a problem, although this result itself may suffer from endogeneity. Columns (3) to (6) present the IV regressions where Tobin's Q is instrumented using the product of the industry oil price β times the log of the oil price (except in column (6) where we simply use the log of the oil price as instrument, although not doing so would give exactly the same results). The results of the first stage regressions are summarized in the lower part of the table.

The identification strategy is most effective for industries that are most sensitive to the oil price. The results in column (5) based on the subset of firms operating in industries with oil price βs exceeding their sample median, and the results in column (6) based on the subset of firms operating in the energy sector alone, are therefore most relevant. Both of these regressions obtain positive but insignificant coefficients on Tobin's Q, indicating that for these subsets of firms there is no significant reverse causality from Tobin's Q to governance after controlling for endogeneity. These results alleviate concerns that our main results suffer from reverse causality.

4.7. Country effects: comparing governance scores with matched U.S. firms

Thus far, we have shown that the firm-level governance in excess of minimally accepted criteria, as measured by the Adjusted CG Index, are positively associated with firm valuation. Any potential country effect of governance on firm valuation has been largely subsumed in the country fixed effects. While we can therefore conclude that firm-level governance matters for valuation, these results do not shed light on the relative importance of firm-level versus country-level governance for corporate valuation. For the sample as a whole, we do not find a significant association between the time-varying Country CG Index and firm valuation, though we do find a positive and significant effect for the subset of non-U.S. firms. However, the Country CG Index score displays little time-variation over the three year sample period in some countries and is likely correlated with other country attributes, making it hard to identify the causal effect of country-level governance scores on firm valuation. Furthermore, it could be that the country effect varies by type of firm. For example, for firms in certain industries (such as those dependent on external finance), corporate governance may matter more, and the valuation of firms in such industries may be affected to a greater extent by country-level governance.

To further differentiate between firm-level and country-level governance, we compare the governance scores of non-U.S. firms with those of matched U.S. firms. Aggarwal et al. (forthcoming) use a

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[19] The oil price sensitivities are calculated from the U.S. Compustat universe of firms over the period 1985–2002 for each industry. We regress industry level average Q on oil prices and year fixed effects. The oil price is the UK Brent oil price, corrected for inflation using the purchasing power parity index for the country. We use annual observations on Q and oil prices.

Table 10
Corporate governance and firm valuation: reverse causality.

Variable	Whole sample	Beta > median Beta oil	Energy	Whole sample	Beta > median Beta oil	Energy
	Ordinary least squares			Two stage least squares		
	(1)	(2)	(3)	(4)	(5)	(6)
Log sales	0.024	0.055	0.155	0.698	0.788	0.255
	(0.041)	(0.048)	(0.12)	(0.449)	(0.709)	(0.325)
Sales growth	0.283	0.763	−0.572	−1.909	−1.413	−0.939
	(0.329)	(0.527)	(0.66)	(1.53)	(2.35)	(1.34)
Investment opportunities	−0.003	−0.001	0.003	0.040	0.005	0.003
	(0.005)	(0.004)	(0.001)	(0.028)	(0.011)	(0.001)
Leverage	−0.001[*]	−0.003[**]	0.008	0.028	0.023	0.017
	(0.002)	(0.002)	(0.009)	(0.021)	(0.014)	(0.033)
Dummy for ADRs	0.242[***]	0.232	−0.675	−0.761	−0.821	−0.702
	(0.09)	(0.14)	(0.50)	(0.83)	(1.06)	(0.454)
Q	0.113[***]	0.079	0.012	6.173	4.778	0.633
	(0.024)	(0.052)	(0.37)	(4.13)	(4.260)	(1.95)
Beta × log oil price (first stage)				1.703[***]	1.819[***]	
				(0.424)	(0.407)	
Log oil price (first stage)					1.015[***]	
					(0.258)	
Country dummies	+	+	+	+	+	+
Industry dummies	+	+	−	+	+	−
F-test of excluded instruments (*p*-value)				0.000	0.000	0.000
N	6134	2208	205	6134	2208	205
R^2	0.7	0.74	0.72	0.26	0.25	0.25

Notes: The results of OLS and IV fixed effect regressions of firm level CG scores. Sales growth is growth of sales over the previous year and proxies for investment opportunities. External financing is defined as the difference between growth of assets and ROE/(1 − ROE). Leverage is the ratio of the sum of long term and short term debt to assets. The dummy for ADR takes value 1 if the firm has an ADR. Tobin's Q is measured as the ratio of market to book value of assets. In the IV regressions oil price is used as IV for Q. Oil price data is obtained from the IFS statistics and is defined as ratio of the Brent UK oil price and purchasing power index (PPI) to create an index of global oil prices. The beta's used in the IV regressions are the sensitivity of each industry Tobin's Q to oil prices. The beta's are reported in Table B. The regressions include country and industry fixed effects. Standard errors are clustered at the country level.

[*] Significance at the 10% level.
[**] Idem, 5% level.
[***] Idem, 1% level.

similar approach to distinguish between governance scores of U.S. and foreign firms. If the matching is perfect, the only reason for observing a difference in governance scores would be that the firms are located in different countries. Under this assumption, the difference between the governance scores of the matched firms, denoted as the gap, captures the country-specific effect. This approach allows the country-specific component to vary by firm, depending on the matching criteria. In reality, it is impossible to match on the basis of all relevant firm attributes. Still, on average the gap will capture the country-specific effect of governance.

We match non-U.S. firms with U.S. firms on the basis of size (as measured by net sales) and industry (2-digit SIC codes). We use the universe of U.S. firms included in the ISS database to achieve the closest match possible. Our matching criteria are supported by *t*-tests that indicate that there are no systematic differences in the matching variables between the two samples. We use the matched sample to construct the following two variables: Gap is the difference between the CG Index of the firm and the CG Index of the matched U.S. firm, and Gap Adjusted CG Index is the difference between the CG Index of the firm and the Gap. Note that the Gap Adjusted CG Index is equivalent to the CG Index of the matched U.S. firm. The Gap captures the country-specific component of the governance score while the Gap Adjusted CG Index captures the firm-specific component of the governance score.

Column (1) in Table 11 shows the estimates when we regress Tobin's Q on these two matched governance variables and the control variables used previously. Note that these regressions only in-

Table 11
Corporate governance and firm valuation: matched sample.

Variable	U.S. matched (1)	Without ADRs (2)	Country gap (3)
Gap Adjusted CG Index	0.021**	0.037*	
	(0.008)	(0.019)	
Gap	0.018	0.032	
	(0.012)	(0.024)	
Country Gap Adjusted CG Index			0.027***
			(0.007)
Country gap			0.087***
			(0.026)
Log sales	−0.096***	−0.122***	−0.096***
	(0.023)	(0.032)	(0.023)
Sales growth	0.230***	0.303***	0.223***
	(0.079)	(0.082)	(0.079)
External financing	−0.005**	−0.003**	−0.005**
	(0.002)	(0.002)	(0.002)
Leverage	−0.006**	−0.007**	−0.006**
	(0.002)	(0.002)	(0.002)
Dummy for ADRs	0.147***		0.139***
	(0.05)		(0.05)
Year = 2004	0.109**	0.136**	0.098***
	(0.02)	(0.03)	(0.02)
Year = 2005	0.138***	0.161***	0.143***
	(0.03)	(0.03)	(0.02)
Industry dummies	+	+	+
Country dummies	+	+	+
N	4830	3496	4830
R^2	0.24	0.24	0.24

Notes: The table shows the results using the difference between the governance scores of a non-U.S. firm and a matched-U.S. firm governance as a firm-specific measure of country level governance. U.S. and non-U.S. firms are matched by year on the basis of size and industry. Gap is the difference between the governance score of the non-U.S. firm and the governance score of the matched U.S. firm. The Gap Adjusted CG Index is the deviation of the CG index from the average country level gap. The Country Gap is the average of the Gap at the country level. The Country Gap Adjusted CG index is the difference between the CG Index and the Country Gap. In regression (2), we exclude firms with ADRs. Regressions do not include U.S. firms. The regressions include country and industry fixed effects. Standard errors are clustered at the country level.

* Significance at the 10% level.
** Idem, 5% level.
*** Idem, 1% level.

clude non-U.S. firms because we use matching U.S. firms as the benchmark for firm-level governance. We find that only the Gap Adjusted CG Index enters positively and significantly, consistent with our earlier findings that firm-specific governance scores are associated with firm valuations. However, an F-test of equality of coefficients indicates that the coefficients on both governance variables are not statistically different from one another. We obtain similar results when constructing the governance gap variables based on scores for the Adjusted CG Index of firms and their matched U.S. counterparts rather than scores for the unadjusted CG Index (not reported).

The economic effect of the result is somewhat larger than that estimated on the basis of the regression coefficients presented in Table 5. A one standard deviation increase in the Gap Adjusted CG Index would, ceteris paribus, amount to an increase in Tobin's Q of 0.07, which is small compared to the standard deviation of Tobin's Q of 0.99.

One could argue that ADR firms are not strictly local firms because they access U.S. capital markets and face regulations from U.S. authorities. Our ADR dummy variable does not effectively control for this possibility. We therefore recompute the Gap and Gap Adjusted CG Index based on a matched sample that excludes ADR firms and re-run the regression on the sub-set of non-ADR firms (obviously dropping the ADR dummy variable). The results are presented in column (2). While the effect of the governance variables increases, with only the Gap Adjusted CG Index entering significantly, we again find that the coefficients on the two governance variables do not differ statistically.

Next, we use the country-average of the gap variable to capture the country effect of governance more directly, similar to the main specification in column (3) of Table 5. We compute two new variables: Country Gap is the average of the Gap at the country level, and Country Gap Adjusted CG Index is the difference between the CG Index and the Country Gap. The Country Gap is always negative for firms in our dataset, indicating that on average over our sample period non-U.S. firms tend to have lower governance scores than their matching U.S. firms. The regression results that control for the Country Gap are presented in column (3). We now find that both Country Gap Adjusted CG Index and Country Gap enter positively and significantly, suggesting that firm valuation is affected by both firm-level and country-level governance scores. These findings are consistent with our earlier findings for non-U.S. firms reported in column (7) of Table 4. The economic effect of the results in column (3) is significant. A one standard deviation increase in Country Gap implies an increase in Tobin's Q of 0.15 and a one standard deviation increase in Country Gap Adjusted CG Index implies an increase in Tobin's Q of 0.08. These results suggest that the effect on valuation is larger for the country-specific component of governance than for the firm-specific component of governance, and indicate that the overall effect of governance of firm valuation is significant.

4.8. Firm characteristics and governance scores

Given the strong positive association between firm governance scores and valuation, an obvious question to ask is why not all firms improve corporate governance to enhance valuation. As explained earlier, controlling shareholders may prevent the adoption of sound corporate governance mechanisms because of the various costs associated with such adoption, both in terms of implementation costs and private costs in the form of a reduced ability to expropriate minority shareholders. As a result, many firms willingly adopt or maintain antitakeover provisions and other measures that lower their governance scores.[20] The overall costs and benefits associated with the adoption of governance attributes will depend on a host of firm-level and country-level characteristics (Doidge et al., 2004), including the ownership structure of the firm and the firm's dependence on external financing.

Table 12 reports results of regressions that consider various firm attributes that may determine the choice of firm-level governance attributes. Our two variables of particular interest are the amount of free cash flow (as defined in Lehn and Poulsen, 1989) and the share of closely held shares. High levels of free cash flow are often associated with overinvestment resulting from agency problems (e.g., Richardson, 2005). We therefore expect sizeable free cash flow to be concentrated in firms with relatively low governance scores. A large fraction of closely held shares signifies concentrated ownership. Weak governance structures enhances a controlling shareholder's ability to expropriate minority shareholders (e.g., La Porta et al., 2002; Shleifer and Wolfenzon, 2002). We therefore expect that firms with concentrated ownership have relatively low governance scores. We also include the control variables used thus far, with particular emphasis on ADR listing variable capturing the firm's need and ability to attract external capital. The dependent variable in regressions (1) and (2) of Table 12 is a dummy variable that takes a value of one if the firm-level CG score is lower than the average CG score in the country, while the dependent variable in regression (3) is the difference between the firm-level CG score and the average CG score in the country.[21]

Consistent with agency theories based on self-interested managers and controlling shareholders, we find in all three specifications that firms with ample free cash flow and concentrated ownership display relatively low governance scores (compared to other firms in the country). Firms that have an ADR listing in the U.S., on the other hand, have relatively sound governance mechanisms, consistent with bonding and signaling theories predicting that firms improve governance if they need to attract outside capital. We also find that large firms, low-growth firms, and financially constrained firms (as measured by the log of sales, sales growth and external financing variables) tend to have relatively

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[20] Managers may also prefer antitakeover measures because it limits their exposure to the market for corporate control, reducing its effectiveness as a disciplining device.

[21] Regressions (1) and (2) in Table 12 are based on a linear probability model. Estimation using a probit or logit model does not qualitatively alter our results.

Table 12
Firm characteristics and corporate governance scores.

Variable	(1) Below country-average CG score	(2) Below country-average CG score	(3) Deviation of CG score from mean
Above-median free cash flow	0.046***		−0.086***
	(0.015)		(0.036)
Free cash flow		0.084***	
		(0.019)	
Closely held shares	0.001***	0.001***	−0.006***
	(0.0003)	(0.0003)	(0.0009)
Log sales	0.017***	0.024***	−0.013
	(0.005)	(0.005)	(0.014)
Sales growth	−0.103**	−0.167***	0.004
	(0.0284)	(0.0290)	(0.0680)
Leverage	−0.001	0.000	0.001**
	(0.0004)	(0.0004)	(0.0009)
External financing	0.005***	0.006***	−0.003**
	(0.0007)	(0.0009)	(0.0010)
Dummy for ADRs	−0.119***	−0.140***	0.203***
	(0.0170)	(0.0190)	(0.0420)
Year dummies	+	+	+
Industry dummies	+	+	+
Country dummies	−	−	+
N	4676	4676	4676
R^2	0.04	0.04	0.04

Notes: Dependent variable in regressions (1) and (2) is a dummy variable that takes a value of one if the firm-level CG score is lower than the average CG score in the country. Dependent variable in regression (3) is the difference between the firm-level CG score and the average CG score in the country. Above-median free cash flow is a dummy variable that takes a value of one if free cash flow is higher than the sample median. Free cash flow is computed as post tax income that is not distributed as dividends or interest income. Specifically free cash flow is operating income less total income taxes, gross interest expenses, total amount of preferred dividend requirement and total amount of dividends on common stock scaled by common equity. The definition of free cash flow follows Lehn and Poulson (1989). Closely held shares are the fraction of share capital that is held by insiders. The regressions include year and industry fixed effects; regression (3) also includes country fixed effects. Standard errors are clustered at the country level.

** Significance at the 5% level.
*** Idem, 1% level.

low governance scores, although these associations are not always robust across the alternative specifications.

The economic effects of these results are not insignificant. For example, the estimated coefficients in regression (1) imply that a one standard deviation increase in the degree to which shares are closely held (about 22 percent) would be associated with a 2 percentage points increase in the probability that the firm has a relatively low governance score. Additionally, moving from a below-average level of free cash flow to an above-average level of free cash flow increases the probability of having a relatively low governance score by 5 percentage points. An ADR listing, on the other hand, is associated with a reduction in the probability of having a relatively low governance score by 12 percentage points. Overall, these results suggest that the costs to controlling shareholders of improving corporate governance often outweigh the benefits, resulting in governance structures that are not necessarily in the interest of minority shareholders.

5. Conclusions

We have evaluated the impact of firm-level corporate governance attributes on the valuation of firms in a large cross-section of countries. Unlike previous work, we differentiate between minimally accepted governance attributes that are satisfied by all firms in a given country and governance attributes that are adopted at the firm level, thus distinguishing between firm-level and country-level governance.

We find that governance scores display much within country variation. We also find that many firms choose to adopt governance provisions beyond those that are adopted by all firms in the country, and that these improvements in corporate governance are positively associated with firm valuation. A one standard deviation increase in the difference between the firm-level governance score and the minimally accepted country-level governance score is associated with a 0.08 increase in Tobin's Q. This amounts to an increase of about one-tenth the standard deviation of Tobin's Q. These results are consistent with earlier work on U.S. firms that finds a significant relation between governance provisions and firm valuation (e.g., Gompers et al., 2003). We extend this work based on the U.S. to firms in other countries, and abstract from minimally accepted governance attributes that are satisfied by all firms in a given country.

Our results indicate that, despite the costs associated with improving corporate governance, many firms adopt governance attributes beyond what can be considered the norm in the country, and such improvements in corporate governance are reflected in higher market valuations. Firms that choose not to adopt sound governance mechanisms tend to have concentrated ownership and sizeable free cash flow, consistent with agency theories based on self-interested managers and controlling shareholders. Our results are robust to a large number of robustness tests, including a series of tests aimed at mitigating concerns about endogeneity between corporate governance and firm valuation. Our findings contribute to the current policy debate on the rewards to companies of improving corporate governance and provide new evidence on the link between corporate governance and firm valuation.

Appendix A

Table A
Governance laws and practices.

Country	One share-one vote mandatory rule (Spamann)	One share-one vote default rule (Spamann)	No dual class shares with unequal voting rights (ISS)	Cumulative voting mandatory rule (Spamann)	Cumulative voting default rule (Spamann)	Cumulative voting (ISS)
Australia	0	1	95%	0	0	0%
Austria	0	1	100%	0	0	0%
Belgium	0	1	97%	0	0	1%
Canada	0	1	72%	0	0	4%
Denmark	0	1	70%	0	0	1%
Finland	0	1	69%	0	0	2%
France	0	1	40%	0	0	94%
Germany	1	1	100%	0	0	0%
Greece	1	1	100%	0	0	0%
Hong Kong	0	1	100%	0	0	97%
Ireland	0	1	7%	0	0	100%
Italy	0	1	99%	0	0	10%

Table A (*continued*)

Country	One share-one vote mandatory rule (Spamann)	One share-one vote default rule (Spamann)	No dual class shares with unequal voting rights (ISS)	Cumulative voting mandatory rule (Spamann)	Cumulative voting default rule (Spamann)	Cumulative voting (ISS)
Japan	0	1	100%	0	1	0%
Netherlands	0	1	77%	0	0	1%
New Zealand	0	1	100%	0	0	2%
Norway	0	1	97%	0	0	0%
Portugal	0	1	88%	0	0	40%
Singapore	0	1	99%	0	0	36%
Spain	0	1	95%	1	1	64%
Sweden	0	1	45%	0	0	0%
Switzerland	0	1	99%	0	0	0%
UK	0	1	99%	0	0	0%
USA	0	1	96%	0	0	9%

Notes: This table lists information about default and mandatory rules on governance attributes for countries in our sample and reports the percentage of firms in the country that have included these governance provisions in the charter or bylaws of the company. 1 indicates that the country has adopted the rule, and 0 indicates that the rule is not in place in the country. No dual class shares with unequal voting rights implies one share-one vote. Data on default and mandatory rules are from Spamann (2006). Default rules are rules that firms can elect to opt out on. Data on actual practices are from ISS. Data refer to the year 2005 only.

Appendix B

Table B
Sensitivity of industry Tobin's Q to oil price.

Industry group	β
Automobiles & Components	−0.76
Banks	0.24
Capital Goods	1.69
Commercial Services & Suppliers	−0.58
Consumer Durables & Apparatus	−0.37
Diversified Financials	0.22
Energy	0.37
Food & Staples Retailing	1.10
Food, Beverage & Tobacco	0.62
Health Care Equipment	0.42
Hotels & Restaurants	0.06
Household & Personal Products	−0.01
Insurance	0.35
Materials	−0.05
Media	−1.31
Pharmaceuticals & Biotechnology	6.93
Real Estate	−0.69
Retailing	0.00
Semiconductors & Semiconductors	4.34
Software & Services	0.90
Technology Hardware & Equipment	−0.72
Telecommunication Services	0.36
Transportation	0.14
Utilities	0.55

References

Aggarwal, R., Erel, I., Stulz, R., Williamson, R., forthcoming. Differences in governance practice between US and foreign firms: Measurement, causes, and consequences. Rev. Finan. Stud.

Arellano, M., Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Rev. Econ. Stud. 58, 277–297.

Bebchuk, L., Cohen, A., Ferrell, A., 2004. What matters in corporate governance? Harvard Law School Olin Discussion Paper No. 491.

Becht, M., Bolton, P., Roell, A., 2003. Corporate governance and control. In: Constantinides, G., Harris, M., Stulz, R. (Eds.), Handbook of the Economics of Finance, vol. 1. North-Holland, Elsevier, pp. 1–109, ch. 1.

Bertrand, M., Mullainathan, S., 2003. Enjoying the quiet life? Corporate governance and managerial preferences. J. Polit. Economy 111, 1043–1075.

Black, B., Jan, H., Kim, W., 2006. Does corporate governance predict firms' market values? Evidence from Korea. J. Law, Econ., Organ. 22, 366–413.

Bruno, V., Claessens, S., 2007. Corporate governance and regulation: Can there be too much of a good thing? Mimeo, World Bank.

Chhaochharia, V., Grinstein, Y., 2007. Corporate governance and firm value: The impact of the 2002 governance rules. J. Finance 62, 1789–1825.

Coffee, J., 2006. Do norms matter? A cross-country examination of the private benefits of control. Mimeo, Columbia University.

Coles, J., Lemmon, M., Meschke, J.F., 2006. Structural models and endogeneity in corporate finance: The link between managerial ownership and corporate performance. Mimeo, University of Utah.

Core, J., Guay, W., Rusticus, T., 2006. Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations. J. Finance 61, 655–687.

Cremers, M., Nair, V., 2005. Governance mechanisms and equity prices. J. Finance 60, 2859–2894.

Demirguc-Kunt, A., Maksimovic, V., 1998. Law, finance, and firm growth. J. Finance 53, 2107–2137.

Demsetz, H., Lehn, K., 1985. The structure of corporate ownership: Causes and consequences. J. Polit. Economy 93, 1155–1177.

Dennis, D., McConnell, J., 2003. International corporate governance. J. Finan. Quant. Anal. 38, 1–36.

Dittmar, A., Mahrt-Smith, J., 2007. Corporate governance and the value of cash holdings. J. Finan. Econ. 83, 599–634.

Dittmar, A., Mahrt-Smith, J., Servaes, H., 2003. International corporate governance and corporate cash holdings. J. Finan. Quant. Anal. 38, 111–134.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2008. The law and economics of self-dealing. J. Finan. Econ. 88, 430–465.

Doidge, C., Karolyi, A., Stulz, R., 2004. Why are foreign firms listed in the US worth more? J. Finan. Econ. 72, 519–553.

Doidge, C., Karolyi, A., Stulz, R., 2007. Why do countries matter so much for corporate governance? J. Finan. Econ. 86, 1–39.

Durnev, A., Kim, E.H., 2005. To steal or not to steal: Firm attributes, legal environment and valuation. J. Finance 60, 1461–1493.

Dyck, A., Zingales, L., 2004. Private benefits of control: An international comparison. J. Finance 59, 533–596.

Gompers, P., Ishii, J., Metrick, A., 2003. Corporate governance and equity prices. Quart. J. Econ. 118, 107–155.

Hochberg, Y., Sapienza, P., Vissing-Jorgensen, A., 2007. A lobbying approach to evaluating the Sarbanes–Oxley Act of 2002. Mimeo, Northwestern University.

Himmelberg, C., Hubbard, R.G., Palia, D., 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. J. Finan. Econ. 53, 353–384.

John, K., Kedia, S., 2006. Design of corporate governance: Role of ownership structure, takeovers, and bank debt. Mimeo, New York University.

Khanna, T., Kogan, J., Palepu, K., 2006. Globalization and similarities in corporate governance: A cross country analysis. Rev. Econ. Statist. 88, 69–90.

Klapper, L., Love, I., 2004. Corporate governance, investor protection and performance in emerging markets. J. Corp. Finan. 10, 703–728.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. J. Polit. Economy 106, 1113–1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 2002. Investor protection and corporate valuation. J. Finance 57, 1147–1170.

Lehn, K., Poulsen, A., 1989. Free cash flow and stockholder gains in going private transactions. J. Finance 44, 771–787.

Licht, A., 2003. Cross-listing and corporate governance: Bonding or avoiding? Chicago J. Int. Law 4, 141–163.

Nenova, T., 2003. The value of corporate voting rights and control: A cross country analysis. J. Finan. Econ. 68, 325–351.

Petersen, M., forthcoming. Estimating standard errors in finance panel data sets: Comparing approaches. Rev. Finan. Stud.

Rajan, R., Zingales, L., 1998. Financial dependence and growth. Amer. Econ. Rev. 88, 559–586.

Richardson, S., 2005. Overinvestment of free cash flow. Mimeo, Wharton School.

Shleifer, A., Vishny, R., 1997. A survey of corporate governance. J. Finance 52, 737–783.

Shleifer, A., Wolfenzon, D., 2002. Investor protection and equity markets. J. Finan. Econ. 66, 3–27.

Spamann, H., 2006. On the insignificance and/or endogeneity of La Porta et al.'s 'anti-director rights index' under consistent coding. Harvard Olin Fellows Discussion Paper No. 7/2006.

Yermack, D., 1996. Higher market valuation for firms with a small board of directors. J. Finan. Econ. 40, 185–211.

Zingales, L., 1998. Corporate governance. In: Newman, P. (Ed.), The New Palgrave Dictionary of Economics and the Law. Macmillan, New York.