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Canadian Foundation for Governance Research
Fondation canadienne de recherche sur la gouvernance

The Robert Bertram Doctoral Research Awards

2011 RESEARCH REPORT

What determines the diversity of the corporate governance practices within and outside U.S. and Canada?

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FINAL REPORT

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October 1st, 2011

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Executive Summary

Anecdotal evidence suggests that firms in some industries and countries have very similar governance practices, whereas firms in other industries and countries differ greatly in their governance structures. Among practitioners, it is widely held that industry factors are important in how firms' structure their governance practices. A leading governance scores provider, Institutional Shareholder Services (henceforth ISS), provides the governance scores for firms and their industry peers alike. Consulting firms strongly advise to consider industry peers' governance as they provide strategies on governance of individual companies. For example, in their report "What is your CGQ IQ?" (Kolar and Neuharth (2007)) attorneys of Oppenheimer Wolff & Donnelly LLP state the following:

"If your industry peers have similar corporate governance structures and market Corporate Governance Quotients (CGQs), then it seems to be of little value to try to boost your market CGQ. On the other hand, if your industry peers have better industry CGQs then you may wish to take measures to improve your company's industry CGQ."

In academics, while researchers test the effects of firm characteristics on governance choice, they generally account for industry fixed effects by using industry dummies. However, this approach does not tell us how industry factors affect firm governance, or why governance structures vary so widely across firms within an industry.

If firms are taking into account the governance practices of their industry peers, then firm governance should be considered as an interdependent choice, not an independent one. When firms choose their governance interdependently, the product market competition becomes an important determinant of how diverse the governance practices are within an industry. In an international context on the other hand, in explaining how diverse firm governance is within a country, the legal environment of the country plays a major role.

This project, by using a governance dataset provided by ISS, explores the determinants of the intra-industry and intra-country dispersion of firm governance practices of firms within and outside Canada. Specifically, the importance of product market competition and the general legal environment in explaining the diversity of practices are investigated. The key findings are summarized below.

Key Findings

- Product market competition is an important determinant of the dispersion of firm governance practices within industries.

- In Canada and in the U.S., the diversity of governance practices increases with the industry concentration. Thus, governance standards of firms are more similar to those of their peers in more competitive industries.

- In Canada, similar to the U.S., the quality of governance practices increases with the industry competition.

- The legal environment of the country is an important determinant of firm governance dispersion within countries.

- In countries with stronger legal environment, firms adopt more similar governance standards.

- In explaining governance dispersion within countries, legal environment remains significant even after accounting for industry factors.

Overall, these findings reveal the importance of industry competitiveness on the quality and the diversity of governance practices of Canadian firms. Both academics and practitioners should never leave out the fact that governance decision is an interdependent choice and that it cannot be isolated from the industry structure in which the firm is operating as well as the governance decisions of industry peers. They also help stress the importance of general legal environment while firms choose their governance practices. The project, therefore, helps provide a better understanding of how firms choose their governance and consequently aim to contribute to the advancement of the universal practice of good governance.

Introduction and Methodology

Theoretical background

The importance of industry factors and peer effects has received great attention in academic governance research in recent years. Some theoretical studies that consider governance an interdependent choice as a reaction to industry peers include Bagnoli and Watts (2007) and Cheng (2009). These studies model governance through earnings manipulation. Bagnoli and Watts (2007) show that through biasing their financial reports and understating their costs of production competitors can start price wars. This bias leads to lower total industry production, a higher price and greater profits. Cheng (2008), on the other hand, follows a different approach and uses relative performance evaluations instead of product market as the channel through which managers compete. In Cheng's model, weak governance of one firm "spills over" and amplifies the incentive for the competing manager to counterbalance the aggressive manipulation with his own manipulation. In the same spirit with these studies, a simple model of industry equilibrium, which endogenizes firm governance variation and links firm governance decisions to broader equilibrium forces is introduced in Appendix A. The model implies that firms make their individual governance decisions in reference to the governance decisions of their industry peers, and the equilibrium outcomes imply intra-industry diversity of governance rather than industry-wide targets.

The model provides testable hypotheses. In industries where managers follow aggressive product market strategies, firms can gain a competitive advantage by worsening governance and thereby producing and selling more than in perfect corporate control case. Hence, as long as a firm can take advantage of the potential market shares, it may choose not to improve the governance structure more than necessary. As some firms choose weaker governance to take advantage of the opportunities in the product market, while the others still may choose to adopt better practices as it is valued by the stockholders, there will be a wide dispersion of governance structures in more concentrated industries. On the other hand, in the case of a perfect competition, there are not as many market opportunities; hence firms cannot increase their market shares even when given enough discretion to their managers. Since each firm is in the same situation in the perfect competition case, they will adopt similar governance structures and there will be less dispersion. Thus;

Hypothesis I *Firms' governance choices are more diverse in imperfectly competitive markets.*

The model has country-level regulation implications; the legal environment of the country is the driving force for the variation of firms within a country. As the legal environment improves and firms are obliged to comply with stricter regulations, there is less room for firms to adopt weak governance. As a result, we see less diversity of governance among firms operating in a country with strong legal environment.

Hypothesis II *Firms' governance choices are less diverse when there is stronger regulation.*

Project objectives

This project conducts an empirical analysis to test the hypotheses regarding governance diversity that are implied by a model of industrial organization. The main objective is to explore the determinants of the dispersion of governance practices of firms. Specifically, the following research questions will be answered:

1. How widely dispersed are corporate governance practices within industries and countries?

2. Why do these distributions vary across industries? Why do they vary across countries?

3. Can we explain governance variation within an industry by product market competition? Can we explain variation within a country by outside legal environment?

The empirical analysis on explaining intra-industry dispersion is conducted for a sample of U.S and Canadian firms. Then, the sample is combined with an international sample of firms from developed and emerging economies to explore and explain the dispersion within countries.

Project contribution to governance literature

Product market competition effects on firm governance have been established theoretically but not as much empirically. This project conducts an empirical analysis to test the hypotheses regarding governance diversity that are implied by a model of industrial organization. The study, therefore, also has more general implications: it provides empirical tests for the industry-equilibrium governance models of the studies discussed in the section above.

Empirically, John and Kadyrzhanova (2009) examined the importance of governance spillovers, using direct tests based on the interaction between a firm's own governance and the governance of its local peers. Despite that their peer definition is based on geographic proximity rather than operating in the same industry, their study also shows evidence that firms' governance decisions are interrelated. They have found that firms are less likely to adopt antitakeover provisions in areas with good governance and good governance increases firm value only if local governance is good. They concluded that in order to understand the governance-performance relationship, the literature needs to go beyond the standard single-firm assumption.

Giroud and Mueller (2009, 2010) show that the value effect of governance is not symmetric across competitive and non-competitive industries. In the former study, they find that the effects of good governance on long-horizon stock returns, firm value and operating performance are small and insignificant in competitive industries, whereas they are large in non- competitive industries. In the latter study, they argue that while firms in non-competitive industries experience a substantial drop in performance after passing laws that weaken governance, firms in competitive industries remain virtually unaffected.

The empirical evidence provided by this project suggests that the industry competition indeed matters and should be accounted for when analyzing firms' governance choices.

The results contribute to the product market competition and governance literature by showing that the competitiveness of industries matters not only to explain the different governance structures across industries but also to explain the variation of governance structures within an industry.

The importance of outside legal environment on firm governance has been stressed many times in governance literature. Studies have shown that firms adjust their firm level governance technologies to mitigate the adverse impact of outside poor legal environment (Durnev and Kim, 2005; Shleifer and Wolfenzon, 2002; La Porta et al., 1999, 2002). This project reveals that the general legal environment is also an important determinant of the diversity of governance practices within the country.

Data

Governance scores

One of the most comprehensive international governance data sets, Corporate Governance Quotients, is compiled by the ISS. The ISS comprises a comprehensive sample of firms (7,901) from 22 countries. The ISS data provide the best coverage (in terms of the number of governance items and the number of firms) for non-U.S. companies compared to other firm governance data sets although the majority of companies come from the U.S. (5,476). The U.S companies are those that are included in the Standard and Poor's 500 index, the Standard and Poor's SmallCap 600 index and the Russell 3000 index. The non-U.S. firms are part of the major international stock indices: the MSCI EAFE index, the FTSE All Share index, the FTSE All World Developed index, and the S&P/TSX index. The data are available for the years from 2003 through 2006.

Through an examination of firms' regulatory filings, annual reports and websites, the ISS determines whether a firm is complying with each of 64 governance attributes, evaluates whether a firm meets a minimally acceptable level of governance and rates them accordingly. Firms can only change their ratings by making changes to their governance structures and publicly disclosing them. The governance attributes for U.S. firms are compiled and provided semiannually. The attributes for non-U.S. firms are available in monthly frequency. For consistency, in this project, the scores for the whole sample are calculated on a semiannual basis.

Following the methodology introduced by Aggarwal et al. (2009), 44 of the attributes in these filings are used to calculate a governance index. The 44 attributes that are selected cover four-broad sub-categories:

1) Board. Twenty-five attributes attempt to capture the aspects of the functioning of the board of directors that relate to board independence, composition of committees, size, transparency, and how work is conducted.

2) Audit. Three attributes consider questions regarding the independence of the audit committee and the role of auditors.

3) Anti-takeover. Six attributes are from the firm's charter and bylaws and they refer to dual-class structure, role of shareholders, poison pill and blank check preferred.

4) Compensation and Ownership. Remaining ten attributes deal with executive and director compensation on issues related to options, stock ownership and loans, and how these types of compensation are determined and monitored. Appendix B provides the list of the 44 attributes that are arranged by the above sub-categories.

The governance score (henceforth, GOV) assigns a value of one to the governance attribute if the company meets minimally acceptable standard on that attribute or zero otherwise. For each firm, the values are added and the sum is divided by total number of non-missing attributes. The index is expressed as a percentage, for example, if a firm satisfies all 44 governance attributes, the index is equal to 100 %. If an attribute is missing then the attribute is eliminated and the value represents the percentage of non-missing attributes that the firm satisfies. Higher index indicates better governance.

The U.S. sample has around 5,200 firms for each time period. GOV scores range between 22.85 % and 92.85 % with an average of 58.12%. The descriptive statistics for the scores are reported in Panel A of Table I for each industry classified by 2-digit NAICS. The smallest number of observations within an industry is 6 and the largest is 16,656. Manufacturing industry has the largest number of observations. The industry average GOVs range between 55.50 and 64.21. The minimum score in the overall sample is 22.85 and the maximum is 92.85. The standard deviations within the industries range from 3.61 to 9.94.

Similarly, Panel B reports the descriptives for GOV scores in the Canadian sample for each industry classified by 2-digit NAICS. The Canadian sample has around 115 firms for each time period. The majority of the observations are in the manufacturing industry. Industry averages of GOVs range from 59.10 to 70.53. Overall scores range from 48.48 to 82.92. The standard deviations within the industries range between 2.69 and 6.52.

The GOV scores in the international sample are described in Panel C for each country. More than half of the observations are from Japan and U.K. Finland has the highest average GOV Score, 66.82 whereas Belgium has the lowest, 48.14. The maximum score in the overall sample is 76.31, which is also from Finland and the minimum score is 35.48 from Spain. The standard deviations within the countries range from 3.87 to 7.53. Panel C also reports the legal environment score in each country. The score is calculated in a standard fashion in the governance literature, shareholder protection index of La Porta et al. (1998) is multiplied by the rule of law in the country. The legal score is the highest in U.K and Singapore and lowest in Greece.

Table I
Summary Statistics for ISS governance scores (GOV)

This table reports the means, standard deviations, minimums, and maximums of ISS governance scores (GOV). GOV is calculated using the methodology by Aggarwal et al. (2009) based on the 44 governance attributes in Appendix B. The summary statistics of U.S. and Canadian firms for each 2-digit NAICS industry are reported in Panel A and Panel B, respectively. The sample contains semi-annual observations for the period spanning years from 2003 through 2006. Panel C summarizes the scores and the legal environment for an international sample by country. LEGAL is the product of investor protection and enforcement, calculated as the anti-director rights index multiplied by the rule of law in the country as in La Porta et al. (1998).

Panel A. Governance scores of U.S. firms by industry

Industry Name	NAICS	N	Mean	Std Dev	Min	Max
Agriculture, Forestry, Fishing and Hunting	11	90	59.09	8.65	42.85	78.57
Mining	21	1,312	58.90	8.46	35.29	83.72
Utilities	22	898	64.21	9.14	38.70	90.00
Construction	23	497	59.72	9.55	29.41	82.04
Manufacturing	31-33	16,656	58.30	8.94	25.71	90.69
Wholesale	42	1,286	57.76	9.00	36.11	88.09
Retail Trade	44-45	1,929	58.44	9.24	32.43	88.09
Transportation and Warehousing	48-49	773	59.32	8.77	36.11	83.72
Information	51	4,427	55.91	8.70	31.42	85.36
Finance and Insurance	52	8,695	58.46	8.90	31.42	92.85
Real Estate and Rental and Leasing	53	704	56.73	9.94	29.72	90.69
Scientific, and Technical Services	54	2,227	57.63	8.65	30.55	82.92
Management of Companies and Enterprises	55	6	63.26	3.61	60.46	70.27
Administrative and Support Management	56	938	56.99	9.46	22.85	83.72
Educational Services	61	133	56.13	8.53	31.42	73.80
Health Care and Social Assistance	62	792	58.22	8.53	34.28	81.39
Arts, Entertainment, and Recreation	71	242	57.00	9.28	36.11	82.50
Accommodation and Food Services	72	849	57.52	9.51	35.89	85.36
Other Services	81	195	55.50	7.03	40.00	74.41
Total		42,649	58.12	9.01	22.85	92.85

Panel B. Governance scores of Canadian firms by industry

Industry Name	NAICS	N	Mean	Std Dev	Min	Max
Mining	21	60	64.90	6.17	51.61	75.75
Utilities	22	21	70.53	6.07	58.33	82.92
Manufacturing	31-33	343	63.68	5.35	48.48	80.48
Wholesale	42	7	59.10	4.21	52.77	65.00
Retail Trade	44-45	30	64.67	6.52	53.84	75.00
Transportation and Warehousing	48-49	8	69.72	2.69	65.78	72.09
Information	51	46	62.25	4.32	54.54	70.73
Finance and Insurance	52	53	65.60	5.21	53.33	74.28
Real Estate and Rental and Leasing	53	6	67.79	5.36	61.11	73.80
Health Care and Social Assistance	62	1	62.50	n/a	62.50	62.50
Arts, Entertainment, and Recreation	71	7	63.43	6.06	55.55	71.42
Accommodation and Food Services	72	5	61.48	2.86	58.97	65.85
Total		587	64.21	5.64	48.48	82.92

Panel C. Governance scores of international firms by country

Country Name	LEGAL	N	Mean	Std Dev	Min	Max
Australia	40.00	119	50.86	4.21	41.02	61.90
Austria	25.00	19	57.81	3.92	51.72	64.51
Belgium	20.83	25	48.14	5.28	38.70	60.60
Denmark	40.00	22	58.06	6.93	43.33	70.58
Finland	35.00	31	66.82	5.41	56.75	76.31
France	37.50	83	55.68	5.94	40.00	69.44
Germany	23.61	85	58.23	5.18	45.16	70.00
Greece	10.00	44	58.82	5.03	50.00	70.83
Hong Kong	41.66	110	54.89	4.82	43.33	64.70
Ireland	40.00	16	55.97	6.78	41.17	65.85
Italy	20.00	71	51.11	6.10	40.00	65.51
Japan	38.12	589	54.68	3.87	42.85	68.75
Netherlands	20.00	47	57.27	7.00	40.00	72.22
New Zealand	40.00	18	49.31	5.34	37.50	57.50
Norway	35.00	21	54.00	7.53	42.30	72.97
Portugal	29.16	14	49.73	5.13	41.37	57.57
Singapore	50.00	67	51.51	4.21	41.93	61.11
Spain	33.33	54	53.60	6.17	35.48	66.66
Sweden	35.00	43	54.09	6.01	39.28	65.71
Switzerland	30.00	58	61.75	6.35	45.16	74.35
U.K.	50.00	530	56.81	5.03	38.23	67.50
Total		2,066	55.19	4.43	35.48	76.31

Industry concentration measures

Two main measures of industry concentration are used in this study: 1) four-firm domestic concentration ratio, CR, which is calculated as the ratio of the sales of the top four firms in an industry to total industry sales and 2) Herfindahl-Hirschman Index (HHI), which is calculated as follows:

$$H = \sum_{i=1}^{N} s_i^2$$

where s_i is the market share for firm i, and N is the number of firms in that industry. The major benefit of the Herfindahl Index with respect to the concentration ratio is that it gives more weight to larger firms. This is due to the fact that the market shares are squared prior to being summed, putting additional weight to firms with larger size. For the U.S. industries, the Bureau of Census reports CR and HHI every five years. The measures used in this project are from 2002. The data is provided based on NAICS classification rather than SIC starting from 1997. The Bureau of Census reports CR for all industries, but HHI for only manufacturing industries. The concentration measures for Canadian firms are obtained from Statistics Canada. Statistics Canada provides yearly industry concentration measures, both CR and HHI only for manufacturing industries. For consistency, the data from 2002 are used.

Summary statistics for the concentration measures, CR and HHI corresponding to U.S. and Canadian industries in the sample are reported in Table II. The ratios are classified according to 4-digit NAICS and reported as of percentages. For the U.S. industries, CR ranges between 1.7 and 90.9 and has a mean of 26.56, and HHI ranges between 0.09 and 23.24 with a mean of 4.12. Canadian industries seem to be significantly more concentrated with CR ratios that range between 15.56 and 94.89 with an average of 59.54, and HHI ratios that range from 1.20 to 32.08, with an average of 13.63.

Table II
Concentration measures of U.S. and Canadian industries

This table reports the summary statistics of industry concentration ratios of U.S. and Canadian industries in the sample. CR is four-firm concentration ratio, computed by the Bureau of Census/ Statistics Canada as the ratio of the sales of the top four firms in an industry to total industry sales. HHI, is Herfindahl Index, computed by the Bureau of Census/ Statistics Canada as the sum of squared market shares of individual firms within an industry. The ratios are reported for industries classified at the 4-digit NAICS level for year 2002.

	Mean	Median	Std	Min	Max	N
U.S						
CR (%)	26.560	22.300	17.631	1.700	90.900	1,586
HHI (%)	4.121	2.984	3.931	0.092	23.235	616
Canada						
CR (%)	59.544	65.057	26.522	15.559	94.891	12
HHI (%)	13.633	11.875	10.976	1.199	32.078	12

Control variables

In order to isolate the effects of industry competition on firms' corporate governance practices, certain variables are used as controls, such as industry measures of leverage, asset intangibility, free cash flows, size, investment opportunities and growth opportunities. These variables should ideally account for other potential reasons why firms' governance practices may exhibit differences. The industry ratios are calculated as the average of firm ratios in each industry. The descriptive statistics for firm ratios are reported for U.S. and Canadian firms in Table III. The data are obtained from COMPUSTAT quarterly at a semi-annual frequency.

The rationale for their inclusion in the main analysis is as follows. Firms with more leverage may be less subject to agency costs due to the role of debt in committing the payout of free cash flows to investors (Grossman and Hart (1982), Jensen (1986)). Hence, firms' choice of governance may differ depending on their leverage levels. Long-term debt (Item 9) scaled by assets (Item 6), LTD, is used to control for differences in leverage. Firms with higher cash flows, on the other hand, can be more subject to agency costs of free cash flows (Jensen (1986)). Therefore, cash (Item 162) scaled by assets (Item 6), defined as CASH, is included to account for differences in governance structures. Firm size, SIZE, is defined as logarithm of assets (Item 6). Larger firms tend to attract more attention and may be under great scrutiny by the public thus, size may affect governance structure. Research and development expenditure (Item 46) scaled by assets (Item 6), R&D, is used to control for differences in intangibility of corporate resources. Companies with high R&D expenditures tend to be high-growth firms and enjoy high valuation. If a firm has all major financial variables except R&D, this variable is set equal to zero; assuming that when a company does not report these variables it is because R&D spending is negligible. Finally, the differences in investment opportunities and growth opportunities can create differences in the need to raise capital and hence in governance practices. Investment opportunities are proxied with Tobin's Q as in La Porta et al. (2002). Tobin's Q is defined as ((market value of equity (Item 199* Item 25) + total assets (Item 6)-total common equity (Item 60)) / total assets (Item 6)). All accounting ratios are winsorized it at the 5^{th} and 95^{th} percentile in order to reduce the effects of outliers. To measure growth opportunities, following Titman and Wessels (1988), firms' capital expenditures (Item 128) over total assets (Item 6) are used. All accounting ratios are lagged by one year to reduce endogeneity.

If firms in some industries are more homogeneous than in others, dispersion of governance practices within an industry could be reduced. This concern is addressed in two ways. First, using Glejser's (1969) conditional heteroskedasticity tests as part of the main tests (explained in detail in the next section) helps explaining governance differences across industries after controlling for determinants of governance at the individual level. Second, for robustness, another set of variables is also added as controls; the standard deviations of the firm characteristics described above.

Table III
Accounting ratios of U.S. and Canadian firms

This table reports the summary statistics for the accounting ratios for U.S. and Canadian firms that are used as controls in the main analysis. Q is computed as the sum of total assets plus market value of equity less book value of equity over total assets; LTD is long-term debt scaled by total assets; R&D is research and development expenses scaled by total assets; CASH is cash scaled by total assets; SIZE is measured as log of total assets; and CAPEX is capital expenditures scaled by total assets. All variables are winsorized at the 5th and 95th percentiles.

	Mean	Median	Std	Min	Max	N
U.S.						
Q	2.223	1.507	1.949	0.933	11.139	41,732
LTD	0.215	0.094	2.943	0.000	394.333	43,086
R&D	0.059	0.000	0.333	0.000	25.257	52,212
CASH	0.139	0.064	0.183	0.000	1.000	42,638
SIZE	5.690	5.811	2.382	-6.907	14.449	43,176
CAPEX	0.044	0.025	0.066	-0.286	2.989	37,562
Canada						
Q	1.900	1.461	1.413	0.599	17.251	784
LTD	0.170	0.144	0.153	0.000	0.710	815
R&D	0.013	0.001	0.025	0.000	0.185	178
SIZE	7.985	7.825	1.883	3.810	13.128	815
CAPEX	0.059	0.033	0.074	0.000	0.418	811

Research Design

Measuring dispersion

Governance diversity is measured in four different ways: the spread of governance, the variance of governance, the logarithm of the standard deviation of governance, and the coefficient of variation in governance within industries. The spread of governance, SP_GOV, is calculated as the difference between the maximum and the minimum of the firm governance scores within an industry. The variance, VAR_GOV, and normalized standard deviation, Log (SD_GOV), are calculated based on the industry means of the scores. Finally, the coefficient of variation, CV_GOV, is calculated by scaling the industry standard deviation with the industry mean. This last measure helps compare the dispersions of governance distributions with different means. These industry-level ratios are only calculated for U.S. sample, since for Canadian sample, the sample size was not large enough for a cross-sectional analysis.

Table IV reports the summary statistics for the measures of governance dispersion for the U.S industries. SP_GOV ranges from 0 to 52.52 with an average of 24.01 and VAR_GOV ranges from 0 to 594.33 with an average of 66.39. Normalized dispersion measure, Log (SD_GOV) ranges from -3.18 to 3.19 with and average of 1.94. Finally, CV_GOV ranges from 0 to 0.45 and has a mean of 0.13.

Table IV
Governance dispersion measures of U.S. industries

This table summarizes the industry governance dispersion measures for the U.S. industries. The spread of governance, SP_GOV, is calculated as the difference between the maximum and the minimum of the firm governance scores within an industry. The variance, VAR_GOV, and normalized standard deviation, Log (SD_GOV), are calculated based on the industry means of the scores. The coefficient of variation, CV_GOV, is calculated by scaling the industry standard deviation with the industry mean.

	Mean	Median	Std	Min	Max	N
SP_ GOV	24.019	24.319	10.834	0.000	52.525	1,760
VAR_ GOV	66.393	58.118	50.257	0.000	594.335	1,760
Log (SD_GOV)	1.947	2.031	0.496	-3.118	3.193	1,759
CV_ GOV	0.131	0.132	0.046	0.000	0.456	1,760

Industry regressions

In order to test the hypotheses implied by the model and investigate the relation between intra-industry corporate governance diversity and industry competition, the following panel regression is estimated at the industry-level:

$$dGOV_t^j = \beta * CONC^j + \gamma * (CONC^j)^2 + \sum_{k=1}^{K} \delta_k * X_{k.t}^j + \sum_{t=1}^{T-1} d_t + e_t^j \qquad (1)$$

where j indexes industry; t, semi-annual observations; k, control variables; T, the number of time-periods; and K, the number of control variables. The dependent variable $dGOV$ is governance diversity variable which is, in order to account for different aspects for dispersion, measured in four different ways: the spread of governance, the variance of governance, the logarithm of the standard deviation of governance, and the coefficient of variation in governance. Variable *CONC* is the measure of industry concentration, which can be proxied by the four-firm concentration ratio (CR), or Herfindahl Index (HHI). A non-linear specification is preferred to a linear one for two reasons. First, the dependent variable is not a level variable, i.e. mean but instead a statistical dispersion, i.e. variance. Second, more competition implies a higher number of firms operating within an industry. As the number of firms increases, it becomes more likely to see different governance structures. Although the number of firms in an industry is used as an additional control, the nature of this relation is easier to capture with a non-linear specification. X is a set of control variables that include the industry means and standard deviations of firm-specific variables such as Tobin's Q, long-term debt, research and development expenses, cash,

size and capital expenditures. Additional controls include the number of firms that are used to calculate the dependent variables (spread, variance etc.) for each industry. This is, as mentioned above, because the inter-industry differences of dispersion might be due to different sample sizes in each industry. Finally, time dummies, d, are also added to control for time fixed effects. Standard errors are clustered by industry to account for error correlation through time. *Hypothesis 1* implies a positive coefficient on β, suggesting higher intra-industry dispersion for more concentrated industries.

Geljser's conditional heteroskedasticity tests

One common way of measuring unexplained variation is through using the errors from the first-stage explanatory regressions. Since, the Canadian sample does not have enough number of industries to explore the cross-sectional variation of governance scores within an industry, a firm-level test of variation is conducted. Glejser's (1969) heteroskedasticity first regresses the governance on the determinants and then uses the absolute value of the residuals, $\hat{u}$, from the first stage to explain governance variability. Glejser test is then the t-test that the coefficient on the measure of industry concentration is zero.

Thus, the following model is estimated:

$$\left|u_{i,t}^{j}\right| = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_k * X_{k,i,t}^{j} + \sum_{t=1}^{T} d_t + e_{i,t}^{j}$$

where $\hat{u}$ are the fitted values of the residuals from the regression:

$$GOV_{i,t}^{j} = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_k * X_{k,i,t}^{j} + \sum_{t=1}^{T} d_t + u_{i,t}^{j}$$

In these regressions i indexes firms, j industries, t semi-annual observations, k control variables, T the number of time-periods, and K the number of control variables. GOV is firm governance, CONC is industry concentration measure, Concentration Ratio or Herfindahl Index, corresponding to the industry that the firm belongs to, d are time fixed effects for semiannual observations (coefficients are not reported). X is a vector of control variables.

These tests not only explain the variation in governance, but also help estimate simultaneously the determinants of firm governance and the industry factors that explain governance.

The relation between governance dispersion and the legal environment is also explained through running Glejser heteroskedasticity tests on the international sample. The absolute values of the residuals, $\hat{u}$, are obtained from an empirical model for the governance and the legal environment, and used to explain governance variation within a country. Glejser test is then the t-test that the coefficient on the measure of the legal environment in the second-stage regression is zero.

Results

Industry Competition and Firm Governance Dispersion

U.S sample

The intra-industry dispersion of firm governance in the U.S is explored through two different methods: 1) industry-level tests and 2) firm-level Glejser tests. For the Glejser tests the first step also involves exploring the determinants of firm governance. Thus, this section also presents the results explaining governance diversity, but also the results of the first-stage regressions that show the importance of industry competitiveness in explaining the quality of firm governance.

Table V reports the results for the first set of regressions. In *Panel A*, the dispersion is proxied with the spread of the scores; the difference between the maximum and the minimum governance score within an industry. The first and third regressions include controls for industry characteristics in averages, calculated by averaging firm characteristics in each industry. The second and fourth regressions control for industry dispersions in other firm characteristics that are calculated as the standard deviations of these firm characteristics in each industry. Overall, the results support the first hypothesis. The industry spread of governance is significantly positively related to concentration. Moreover, a negative significant coefficient in the squared term implies that the relation between competitiveness and governance dispersion is non-linear. The number of firms in each industry that are used for calculating the spread is also significantly positive. This indicates that the initial concern was relevant, that is, sample size matters in the calculation of the spread. Industry means and standard deviations of firm-specific variables are included as controls first separately, and then together with the time fixed effects; the positive relation and the negative quadratic relation stand significant and strong in all cases. In the first column, the coefficients for the industry means of SIZE, LTD and CAPEX are all significant and positive, suggesting that the governance practices are more diverse in larger industries, more levered industries and industries with more growth opportunities. After controlling for time effects, LTD remains significant still. Most of the coefficients on the standard deviations of controls are also significant. Observing that industry concentration remains significant even after controlling for many sources of heterogeneity among firms allow us to reject null hypothesis that cross-sectional differences in industry dispersion are simply a by-product of cross-sectional differences in firm characteristics.

Next, two other measures of dispersion, the variance of governance scores, VAR_GOV, and the logarithm of their standard deviation, Log (SD_GOV), are regressed on industry concentration together with the controls. The results, reported in *Panel B* and *Panel C* indicate that the positive relation between the dispersion of the governance and industry concentration continues to hold. In Panel B, the negative coefficients on the squared concentration ratio suggest that the dispersion increases with the industry concentration at a decreasing rate. *Panel C* does not include a squared term for concentration considering that the concave relation is already captured through the logarithm of the dependent variable. The coefficients on the number of firms in each industry that are used to calculate the dispersion measure are significant in all cases when the dependent variable

Table V
Governance Diversity and Industry Concentration – U.S. industries

This table reports the results of following panel regression:

$$dGOV_{j,t} = \beta * CONC_j + \gamma * (CONC_j)^2 + \sum_{k=1}^{K} \delta^k * X^k_{j.t} + \sum_{t=1}^{T} d_t + e_{j,t}$$

where j indexes industries; t semi-annual observations; k control variables; T the number of time-periods; and K the number of control variables. $dGOV$ is governance dispersion variable which is proxied by the spread of governance scores, SP_GOV, calculated as the difference between the maximum and the minimum governance score within an industry (reported in Panel A); the variance of governance scores, VAR_GOV, computed as squared cross-sectional standard deviations from the cross-sectional mean of governance (reported in Panel B); the log of standard deviation of governance, log (SD_GOV), (reported in Panel C) and the coefficient of variation of governance, CV_ GOV, calculated as cross-sectional standard deviation divided by the cross-sectional mean (reported in Panel D, coefficients of estimates are in percentages). CONC is industry concentration measure CR, computed as the ratio of the sales of the top four firms in an industry to total industry sales; d are time fixed effects for semiannual observations (coefficients are not reported). X is a set of control variables that include the number of firms an industry that are used to calculate the dispersion measures. Other controls are the industry means and standard deviations of the firm-specific variables: Q, computed as the sum of total assets plus market value of equity less book value of equity over total assets; LTD, long-term debt scaled by total assets; R&D, research and development expenses scaled by total assets; CASH, cash scaled by total assets; SIZE, log of total assets; and CAPEX, capital expenditures scaled by total assets. All accounting variables are lagged by one year. The first and third regressions control for industry means; the second and fourth regressions control for industry dispersion in firm-specific controls, calculated as standard deviations. Industry classification is based on 4-digit NAICS. Dispersion measures are calculated for years 2003-2006 semi-annually. CR is for 2002. Firm specific control variables are in semi-annual frequency for years 2003-2006. Standard errors are clustered by industry to account for within-industry error correlation. ***, **, * denote 1%, 5% and 10% significance respectively. The *F*-test is a joint significance test, *p*-values are reported below the test statistics.

Panel A

Dependent variable	**SP_GOV**			
Controls	Average	Std Dev	Average	Std Dev
CR	0.126***	0.103**	0.131***	0.088**
	(3.11)	(2.54)	(3.35)	(2.27)
$(CR)^2$	-0.001***	-0.001***	-0.001***	-0.001***
	(-3.55)	(-3.09)	(-3.64)	(-3.01)
Nb of firms	0.139***	0.129***	0.138***	0.127***
	(15.54)	(15.04)	(15.39)	(14.95)
Q	0.321	0.199	0.260	0.375
	(0.75)	(0.64)	(0.63)	(1.26)
LTD	1.079***	0.489***	0.979**	0.442***
	(2.79)	(3.43)	(2.40)	(3.15)
R&D	-3.715	-4.311***	-4.423	-4.691***
	(-0.64)	(-2.40)	(-0.74)	(-2.54)
CASH	-5.869	2.576	-7.358	3.598
	(-1.29)	(0.66)	(-1.60)	(0.95)
SIZE	0.618**	1.997***	0.232	2.260***
	(2.43)	(4.39)	(0.92)	(5.11)
CAPEX	16.451*	20.783***	12.786	20.903***
	(1.88)	(2.62)	(1.53)	(2.88)
Time fixed effects	No	No	Yes	Yes
F-Statistic	33.30	41.17	24.29	31.88
	(0.00)	(0.00)	(0.00)	(0.00)
R^2 Adjusted	0.270	0.282	0.310	0.333
N	1,586	1,586	1,586	1,586

Panel B					*Panel C*			
Dependent Variable	**VAR_GOV**				**Log (SD_GOV)**			
Controls	Average	Std Dev	Average	Std Dev	Average	Std Dev	Average	Std Dev
CR	0.351*	0.565***	0.380**	0.490**	0.001**	0.001**	0.001***	0.001**
	(1.73)	(2.76)	(1.97)	(2.56)	(2.03)	(2.54)	(2.57)	(2.23)
$(CR)^2$	-0.004**	-0.005**	-0.004**	-0.005**	–	–	–	–
	(-2.02)	(-2.47)	(-2.05)	(-2.39)				
Nb of firms	0.042**	0.024	0.038*	0.017	0.001***	0.001***	0.001***	0.001***
	(2.15)	(1.52)	(1.94)	(1.12)	(6.73)	(7.20)	(6.40)	(6.87)
Q	2.529	2.032	2.177	2.944*	0.025	0.027*	0.022	0.034**
	(1.13)	(1.21)	(1.01)	(1.85)	(0.97)	(1.80)	(0.88)	(2.36)
LTD	3.568	1.800***	3.006	1.569***	0.027	0.016***	0.023	0.014***
	(1.81)	(3.52)	(1.62)	(3.35)	(1.59)	(4.45)	(1.34)	(4.02)
R&D	-1.986	-7.679	-6.262	-9.754*	0.020	-0.109**	-0.020	-0.127**
	(-0.09)	(-1.63)	(-0.26)	(-1.90)	(0.08)	(-2.36)	(-0.08)	(-2.50)
CASH	-44.067**	-45.109**	-52.669**	-40.1861**	-0.553**	-0.231	-0.611**	-0.183
	(-1.97)	(-2.11)	(-2.40)	(-1.97)	(-1.98)	(-1.03)	(-2.18)	(-0.84)
SIZE	2.072	-4.316	-0.139	-2.965	0.015	0.020	-0.001	0.031
	(1.38)	(-1.51)	(-0.09)	(-1.07)	(1.06)	(0.74)	(-0.11)	(1.15)
CAPEX	154.920***	-12.003	134.020**	-11.372	0.731*	0.629*	0.570	0.629**
	(2.77)	(-0.40)	(2.51)	(-0.41)	(1.74)	(1.84)	(1.42)	(1.98)
Time fixed effects	No	No	Yes	Yes	No	No	Yes	Yes
F-Statistics	3.56	3.64	10.00	10.39	8.67	10.14	11.04	12.79
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R^2 Adjusted	0.021	0.012	0.091	0.085	0.033	0.029	0.085	0.088
N	1,586	1,586	1,586	1,586	1,585	1,585	1,585	1,585

Panel D

Dependent Variable	**CV_GOV**			
Controls	Average	Std Dev	Average	Std Dev
CR	0.054**	0.049**	0.055***	0.046**
	(2.64)	(2.42)	(2.74)	(2.33)
$(CR)^2$	-0.060**	-0.061**	-0.059**	-0.059**
	(-2.45)	(-2.46)	(-2.50)	(-2.45)
Nb of firms	0.009***	0.006***	0.009***	0.006***
	(4.48)	(3.99)	(4.34)	(3.79)
Q	0.065	0.283*	0.080	0.326**
	(0.28)	(1.77)	(0.35)	(2.09)
LTD	0.446**	0.176***	0.425**	0.169***
	(2.36)	(3.67)	(2.37)	(3.98)
R&D	-1.835	-1.034**	-2.217	-1.173**
	(-0.73)	(-2.01)	(-0.86)	(-2.26)
CASH	-4.772*	-1.772	-5.083**	-1.481
	(-1.90)	(-0.83)	(-2.03)	(-0.71)
SIZE	-0.297*	-0.007	-0.379**	0.047
	(-1.95)	(-0.03)	(-2.45)	(0.18)
CAPEX	11.374**	2.954	10.511**	2.978
	(2.49)	(0.95)	(2.35)	(0.99)
Time fixed effects	No	No	Yes	Yes
F-Statistics	5.86	4.86	6.23	6.13
	(0.00)	(0.00)	(0.00)	(0.00)
R^2 Adjusted	0.019	0.013	0.045	0.040
N	1,586	1,586	1,586	1,586

is Log (SD_GOV) but not when it is VAR_GOV. The significant coefficients on industry means of CASH and CAPEX imply that the low-cash industries and industries with more growth opportunities have a wider dispersion of governance.

To control for the mean of governance while measuring its dispersion, the coefficient of variation, CV_GOV, is calculated by scaling the standard deviation with the industry mean. This helps comparing the dispersions of governance distributions with different means. *Panel D* shows that controlling for the mean does not alter the earlier findings. Industry concentration is positively related to the governance dispersion and the relation is non-linear. Dispersion is higher for more-levered, low-cash and high-growth industries.

Next, Glejser tests are conducted. First-stage regressions of the Glejser tests explore how governance quality of firms is related to the competitiveness of the industry to which the firm belongs. Table VI reports the results. The first and third regressions use concentration ratio as the proxy for industry competitiveness whereas the second and fourth regressions use the Herfindahl Index (HHI). Herfindahl Index provided by Bureau of Census is only available for manufacturing firms hence the sample size of the tests that use this measure is less than half of the initial sample. The negative and significant coefficients on the industry competition proxies show that firms in less concentrated industries practice better governance. Moreover, the significant positive coefficient on Tobin's Q is consistent with the literature implying that firms with better governance have higher valuation. Also, larger firms, high-growth firms and firms with less leverage have better governance.

The results of the second-stage regression are reported in Table VII. The regressions in first four columns use the four-firm domestic concentration ratio as the proxy for industry concentration. The regressions in the last four columns use the Herfindahl-Hirschman Index for the firms in manufacturing industries. The coefficients on both industry concentration measures, Concentration Ratio and Herfindahl-Hirschman Index, are positive and significant in almost all cases. This reconfirms the earlier result that firms in more concentrated industries show greater variation in their governance practices. Also, coefficients on CASH, SIZE and CAPEX are consistently significant supporting the earlier claims; low-cash firms, large firms and high-growth firms have more dispersion in governance.

Overall, empirical tests support the first hypothesis that variation in governance and disclosure practices of firms is higher in concentrated industries. In addition, the evidence suggests that the relation between governance dispersion and industry concentration is nonlinear.

Table VI
Firm Governance and Industry Concentration - U.S firms

This table reports the results of following panel regression:

$$GOV_{i,t}^{j} = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_k * X_{k,i,t}^{j} + \sum_{t=1}^{T} d_t + u_{i,t}^{j}$$

In these regressions, i indexes firms, j industries, t semi-annual observations, k control variables, T the number of time-periods, and K the number of control variables. GOV is firm governance score, CONC is industry concentration measure, Concentration Ratio or Herfindahl Index, corresponding to the industry that the firm belongs to, d are time fixed effects for semi-annual observations (coefficients are not reported). X is a vector of control variables. They are: Q, the sum of total assets plus market value of equity less book value of equity over total assets (winsorized at the 5th and 95th percentiles); LTD, long-term debt scaled by total assets; R&D, research and development expenses scaled by total assets; CASH, cash scaled by total assets; SIZE, log of total assets; and CAPEX, capital expenditures scaled by total assets. All accounting variables are lagged by one year. The first and third columns report the results with CR, four-firm concentration ratio computed by the Bureau of Census as the ratio of the sales of the top four firms in an industry to total industry sales. The second and the fourth columns report the results with the HHI, Herfindahl Index computed by the Bureau of Census as the sum of squared market shares of individual firms within an industry. In each panel, the first two columns report results with no time fixed effects; third and fourth columns include time fixed effects. Industry classification is based on 4-digit NAICS. Governance scores are calculated for years 2003-2006 semi-annually. CR and HHI are for 2002. HHI is only available for the manufacturing industries. Firm-specific control variables are in semi-annual frequency for years 2003-2006. *t*-statistics are in parentheses. ***, **, * denote 1%, 5% and 10% significance respectively. The *F*-test is a joint significance test, *p*-values are reported below the test statistics. Standard errors are clustered by firms to account error correlation through time.

Dependent variable	**GOV**			
CR	-0.0359***		-0.0345***	
	(-2.66)		(-2.54)	
HHI		-0.0013**		-0.0010*
		(-2.20)		(-1.73)
Q	0.4074***	0.3288***	0.3789***	0.3378***
	(5.85)	(3.81)	(6.29)	(3.96)
LTD	-0.1927***	-0.1509***	-0.1817***	-0.1404***
	(-3.06)	(-4.88)	(-3.22)	(-5.06)
R&D	0.9835***	0.7212**	0.5625*	0.2186
	(3.34)	(2.26)	(1.80)	(0.74)
CASH	-0.8159	0.7163*	-0.6951	0.4847
	(-0.90)	(2.00)	(-1.01)	(1.60)
SIZE	1.4622 ***	1.3761***	1.3535***	1.2772***
	(17.97)	(17.51)	(18.32)	(18.90)
CAPEX	-1.1987	4.4143	-3.8143	0.7725
	(-0.36)	(0.94)	(-1.18)	(0.16)
Time fixed effects	No	No	Yes	Yes
F-Statistics	63.97	240.80	1412.99	7080.33
	(0.00)	(0.00)	(0.00)	(0.00)
R^2 Adjusted	0.123	0.105	0.282	0.260
N	30,873	14,647	30,873	14,647

Table VII
Conditional Heteroskedasticity Tests for Industry Concentration – U.S. firms

This table reports the results of the regression:

$$\left|u_{i,t}^{j}\right| = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_{k} * X_{k,i.t}^{j} + \sum_{t=1}^{T} d_{t} + e_{i,t}^{j}$$

where $\hat{u}$ are the fitted values of the residuals from the regression:

$$GOV_{i,t}^{j} = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_{k} * X_{k,i.t}^{j} + \sum_{t=1}^{T} d_{t} + u_{i,t}^{j}$$

In these regressions i indexes firms, j industries, t semi-annual observations, k control variables, T the number of time-periods, and K the number of control variables. GOV is firm governance, CONC is industry concentration measure, Concentration Ratio or Herfindahl,Index, corresponding to the industry that the firm belongs to, d are time fixed effects for semiannual observations (coefficients are not reported). X is a vector of control variables. They are: Q, computed as the sum of total assets plus market value of equity less book value of equity over total assets and winsorized at the 5th and 95th percentiles; LTD, long-term debt scaled by total assets; R&D, research and development expenses scaled by total assets; CASH, cash scaled by total assets; SIZE, log of total assets; and CAPEX, capital expenditures scaled by total assets. All accounting variables are lagged by one year. In second stage regressions, X also includes the cross-sectional standard deviations of the control variables with respect to the industry-mean. First four columns report the results with CR, four-firm concentration ratio computed by the Bureau of Census as the ratio of the sales of the top four firms in an industry to total industry sales and last four columns report the results with HHI, Herfindahl Index computed by the Bureau of Census as the sum of squared market shares of individual firms within an industry. In each panel, the first two columns report results with no controls in the second-stage; third and fourth columns include controls. Industry classification is based on 4-digit NAICS. Governance scores are calculated for years 2003-2006 semi-annually. CR and HHI are for 2002. Firm specific control variables are in semi-annual frequency for years 2003-2006. HHI is only available for manufacturing industries. *t*-statistics are in parentheses. ***, **, * denote 1%, 5% and 10% significance respectively. The *F*-test is a joint significance test.

Dependent Variable : $\left\|u^i\right\|$								
CR	0.005**	0.007***	0.002	0.005**				
	(2.32)	(3.39)	(0.93)	(2.02)				
HHI					0.001***	0.001***	0.001*	0.001*
					(6.33)	(6.46)	(1.62)	(1.61)
Q			-0.012	-0.020			0.000	-0.007
			(-0.69)	(-1.23)			(0.00)	(-0.36)
LTD			-0.008	0.005			-0.033	-0.022
			(-0.34)	(0.21)			(-1.21)	(-0.89)
R&D			0.038	-0.239**			0.003	-0.198
			(0.33)	(-2.26)			(0.03)	(-1.61)
CASH			-0.553***	-0.780***			-0.457*	-0.509**
			(-2.88)	(-4.48)			(-1.81)	(-2.21)
SIZE			0.091***	-0.119***			0.079***	-0.128***
			(6.40)	(-9.21)			(3.88)	(-6.83)
CAPEX			1.677***	1.648***			-0.071	-0.623*
			(2.60)	(2.81)			(-0.06)	(-0.61)
Sd(Q)			-0.049	-0.045			-0.211	0.160
			(-0.67)	(-0.67)			(-1.38)	(1.12)
Sd(LTD)			0.037	0.003			0.086**	-0.067*
			(1.40)	(0.14)			(2.32)	(-1.77)
Sd(R&D)			-0.163	0.021			-0.421**	-0.109
			(-1.18)	(0.17)			(-1.96)	(-0.55)
Sd(Cash)			1.058	0.471			2.373	1.654
			(1.14)	(0.56)			(1.48)	(1.13)
Sd(Size)			-0.213**	-0.118			-0.164	-0.270
			(-2.04)	(-1.25)			(-0.53)	(-0.96)
Sd(CAPEX)			-0.509	0.137			1.640	-7.901**
			(-0.46)	(0.14)			(0.39)	(-1.99)
Time fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
F-statistics	5.40	104.97	9.29	12.55	40.12	42.72	4.01	6.50
R^2 adjusted	0.001	0.020	0.003	0.007	0.002	0.019	0.002	0.007
N	40,554	40,554	30,853	30,853	16,656	16,656	14,647	14,647

Canada

The intra-industry dispersion of firm governance in Canada is explored through firm-level Glejser tests. Both concentration measures are provided by Statistics Canada for only manufacturing industries. Therefore, the Canadian tests are conducted only for the firms in the manufacturing sector. Similar to the U.S. sample tests, the first-stage regressions explore how governance quality of Canadian firms is related to the industry competitiveness. The results are reported in Table VIII. The first and third regressions use concentration ratio as the proxy for industry competitiveness whereas the second and fourth regressions use the Herfindahl Index (HHI). The coefficients on the industry competition proxies are negative and significant for all specifications, implying that firms in more competitive industries practice better governance. The coefficients on SIZE are also significantly positive suggesting that larger firms practice better governance. The coefficients on CAPEX are significant and positive for tests that use HHI, suggesting better quality governance for high growth Canadian firms.

The results of the second-stage regression are reported in Table IX. Analogous to Table VII, the regressions in first four columns use the four-firm concentration ratio as the proxy for industry concentration and those in the last four columns use the Herfindahl-Hirschman Index. The coefficients on both industry concentration measures, Concentration Ratio and Herfindahl-Hirschman Index, are positive and significant in almost all cases. This is consistent with the U.S. sample results and provides additional support for the hypothesis that firms in more concentrated industries have more diversity in their governance practices.

Key findings in this section can be summarized as follows

- Governance practices of the industry peers matter when firms choose to adopt governance standards.
- Product market competition is an important determinant of the dispersion of firm governance practices within industries.
- The diversity of governance practices increases with the industry concentration. Thus, governance standards of firms are more similar to those of their peers in more competitive industries.
- Governance practices are more diverse in industries that are composed of firms that are larger in terms of assets, have low-cash and are more levered as well as those with more growth opportunities.
- Cross-sectional differences in industry dispersion of governance are not simply a by-product of cross-sectional differences in firm characteristics.
- The quality of governance practices increases with the competitiveness in the industry.
- Firms in less concentrated industries practice better governance. Also, larger firms, high-growth firms and firms with less leverage have better governance.
- The evidence is consistent and holds for both U.S. and Canadian firms.

Table VIII
Firm Governance and Industry Concentration - Canadian firms

This table reports the results of following panel regression:

$$GOV_{i,t}^{j} = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_k * X_{k,i.t}^{j} + \sum_{t=1}^{T} d_t + u_{i,t}^{j}$$

In these regressions, i indexes firms, j industries, t semi-annual observations, k control variables, T the number of time-periods, and K the number of control variables. GOV is firm governance score, CONC is industry concentration measure, Concentration Ratio or Herfindahl Index, corresponding to the industry that the firm belongs to, d are time fixed effects for semi-annual observations (coefficients are not reported). X is a vector of control variables. They are: Q, the sum of total assets plus market value of equity less book value of equity over total assets (winsorized at the 5th and 95th percentiles); LTD, long-term debt scaled by total assets; R&D, research and development expenses scaled by total assets; CASH, cash scaled by total assets; SIZE, log of total assets; and CAPEX, capital expenditures scaled by total assets. All accounting variables are lagged by one year. The first and third columns report the results with CR, four-firm concentration ratio computed by the Statistics Canada as the ratio of the sales of the top four firms in an industry to total industry sales. The second and the fourth columns report the results with the HHI, Herfindahl Index computed by the Statistics Canada as the sum of squared market shares of individual firms within an industry. In each panel, the first two columns report results with no time fixed effects; third and fourth columns include time fixed effects. Industry classification is based on 4-digit NAICS. Governance scores are calculated for years 2003-2006 semi-annually. CR and HHI are for 2002. Both concentration measures are only available for the manufacturing industries. Firm-specific control variables are in semi-annual frequency for years 2003-2006. *t*-statistics are in parentheses. ***, **, * denote 1%, 5% and 10% significance respectively. The *F*-test is a joint significance test, *p*-values are reported below the test statistics. Standard errors are clustered by firms to account error correlation through time.

Dependent variable	**GOV**			
CR	-0.061**		-0.0345***	
	(-2.04)		(-2.54)	
HHI		-17.147**		-19.006***
		(-2.51)		(-2.97)
Q	-0.458	-0.153	-0.480	-0.241
	(-0.95)	(-0.33)	(-1.10)	(-0.56)
LTD	-2.952	-1.934	-4.148	-2.829
	(-0.70)	(-0.48)	(-1.08)	(-0.78)
R&D	-22.273	-22.928	-16.458	-18.726
	(-1.25)	(-1.33)	(-1.01)	(-1.18)
SIZE	1.270**	1.519***	1.053*	1.231**
	(2.16)	(2.83)	(1.98)	(2.50)
CAPEX	17.678	14.851	37.693*	37.152*
	(0.80)	(0.74)	(1.77)	(1.87)
Time fixed effects	No	No	Yes	Yes
F-Statistics	3.97	4.87	4.59	4.42
	(0.00)	(0.00)	(0.00)	(0.00)
R^2 Adjusted	0.194	0.208	0.347	0.353
N	75	79	75	79

Table IX
Conditional Heteroskedasticity Tests for Industry Concentration – Canadian firms

This table reports the results of the regression:

$$\left|u_{i,t}^{j}\right| = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_{k} * X_{k,i.t}^{j} + \sum_{t=1}^{T} d_{t} + e_{i,t}^{j}$$

where $\hat{u}$ are the fitted values of the residuals from the regression:

$$GOV_{i,t}^{j} = \beta * CONC^{j} + \sum_{k=1}^{K} \delta_{k} * X_{k,i.t}^{j} + \sum_{t=1}^{T} d_{t} + u_{i,t}^{j}$$

In these regressions i indexes firms, j industries, t semi-annual observations, k control variables, T the number of time-periods, and K the number of control variables. GOV is firm governance, CONC is industry concentration measure, Concentration Ratio or Herfindahl,Index, corresponding to the industry that the firm belongs to, d are time fixed effects for semiannual observations (coefficients are not reported). X is a vector of control variables. They are: Q, computed as the sum of total assets plus market value of equity less book value of equity over total assets and winsorized at the 5th and 95th percentiles; LTD, long-term debt scaled by total assets; R&D, research and development expenses scaled by total assets; CASH, cash scaled by total assets; SIZE, log of total assets; and CAPEX, capital expenditures scaled by total assets. All accounting variables are lagged by one year. In second stage regressions, X also includes the cross-sectional standard deviations of the control variables with respect to the industry-mean. First four columns report the results with CR, four-firm concentration ratio computed by the Statistics Canada as the ratio of the sales of the top four firms in an industry to total industry sales and last four columns report the results with HHI, Herfindahl Index computed by the Statistics Canada as the sum of squared market shares of individual firms within an industry. In each panel, the first two columns report results with no controls in the second-stage; third and fourth columns include controls. Industry classification is based on 4-digit NAICS. Governance scores are calculated for years 2003-2006 semi-annually. CR and HHI are for 2002. Firm specific control variables are in semi-annual frequency for years 2003-2006. Both measures are only available for manufacturing industries. *t*-statistics are in parentheses. ***, **, * denote 1%, 5% and 10% significance respectively. The *F*-test is a joint significance test.

Dependent Variable : $\left\|u^i\right\|$								
CR	0.020**	0.021***	0.038***	0.032*				
	(2.54)	(2.60)	(3.67)	(2.20)				
HHI					0.0545**	0.0546**	0.1087***	0.0990*
					(2.56)	(2.50)	(3.68)	(1.84)
Q			-0.185	-0.215			-0.562	-0.590
			(-0.53)	(-0.56)			(-1.51)	(-1.52)
LTD			-0.310	-0.043			-1.479	-1.210
			(-0.16)	(-0.02)			(-0.79)	(-0.51)
R&D			0.349	-0.995			2.021	0.896
			(0.09)	(-0.15)			(0.40)	(0.09)
SIZE			0.075	0.089			0.160	0.225
			(0.60)	(0.55)			(0.98)	(0.70)
CAPEX			-0.10	3.300			3.674	6.180
			(0.99)	(0.33)			(0.39)	(0.47)
Sd(Q)			-1.048	-1.002			0.491	0.768
			(-1.29)	(-1.02)			(0.51)	(0.59)
Sd(LTD)			-5.915	-7.907			5.731	5.356
			(-1.00)	(-1.03)			(1.17)	(0.54)
Sd(Size)			-1.877**	-1.548			-3.156***	-3.209***
			(-2.74)	(-1.57)			(-5.30)	(-2.77)
Sd(CAPEX)			25.835	23.480			5.351	1.242
			(1.59)	(1.36)			(0.32)	(0.05)
Time fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
F-statistics	6.47	3.51	1.84	1.33	6.57	13.41	2.06	1.43
R^2 adjusted	0.016	0.043	0.102	0.062	0.021	0.059	0.119	0.076
N	331	331	75	75	343	343	79	79

Legal Environment and Firm Governance Dispersion

The intra-country dispersion of firm governance practices is explored next. The model implies that the legal environment of the country is the driving force for the variation of firms within a country. As the legal environment improves and firms are obliged to comply with stricter regulations, there is less room for firms to adopt weak governance. Thus, diversity of governance is less among firms operating in a country with strong legal environment. In order to investigate the relation between governance dispersion and the quality of the legal environment, again Glejser's (1969) heteroskedasticity test is employed using an international sample. The reason why this method is preferred over simply regressing within country dispersion measures on relevant variables is due to lack of sufficient number of observations within each country. The results for the first-stage and the second-stage are reported in Table X.

The results of first-stage regressions are reported in first two columns. The first column does not control for differences industries whereas the second one does. The results in the first column show that the quality of the legal environment is positively associated with the firm's governance, which is consistent with Durnev and Kim (2005). Also, the positive coefficients on Tobin's Q and size support the well-known results that better governance is value enhancing and large firms have stronger governance. Once the industry effects are taken into account the coefficient on LEGAL is still positive but no longer significant. Thus, this may indicate that the industry factors are more important for the quality of firm governance than the outside legal environment in that country.

Most of the findings from the first-stage regressions have been documented already by the literature. The contribution of this project is exploring the dispersion of governance practices through the results from second-stage regressions. Regardless of whether the industry effects are accounted for or not, the coefficients on LEGAL are significantly negative. This supports the hypothesis that variation in governance practices is negatively related to the quality of the legal environment. Overall, these results are consistent with the argument that as the legal environment improves, there is less room for firms to adopt weak governance. Therefore, the diversity of governance practices is absorbed among firms operating in a country with strong legal environment.

Key findings in this section can be summarized as follows

- The legal environment of the country is an important determinant of firm governance dispersion within countries.
- In countries with stronger legal environment, firms adopt more similar governance standards.
- In explaining governance quality, the legal environment is significant, however, once industry factors are accounted for it is no longer significant.
- In explaining governance dispersion within countries, legal environment remains significant even after accounting for industry factors.

Table X
Governance Diversity and Legal Environment

This table reports the results of the regression:

$$\left|u_i^c\right| = \beta * LEGAL^c + \sum_{k=1}^{K} \delta_k * X_{k,i}^c + e_i^c$$

where $\hat{u}$ are the fitted values of the residuals from the regression:

$$GOV_i^c = \beta * LEGAL^c + \sum_{k=1}^{K} \delta_k * X_{k.i}^c + u_i^c$$

In these regressions, i indexes firms, c countries, k control variables, and K the number of control variables. GOV is ISS firm governance score, LEGAL is the product of investor protection and enforcement, calculated as the anti-director rights index multiplied by the rule of law in the country as in La Porta et al. (1998). X is a vector of control variables. They are: Q, computed as the sum of total assets plus market value of equity less book value of equity over total assets and winsorized at the 5th and 95th percentiles; LTD, long-term debt scaled by total assets; CASH, cash scaled by total assets; SIZE, log of total assets; and CAPEX, capital expenditures scaled by total assets. All accounting ratios are lagged by one year. First two columns report the results for the first-stage regressions and last two columns report the results for the second-stage regressions. *t*-statistics are in parentheses. ***, **, * denote 1%, 5% and 10% significance respectively. The *F*-test is a joint significance test; *p*-values are reported below the test statistics.

Dependent Variable	GOV	GOV	$\|U_{GOV}\|$	$\|U_{GOV}\|$
LEGAL	0.034**	0.047	-0.054***	-0.063***
	(2.10)	(1.55)	(-5.97)	(-3.31)
Q	0.346***	0.264	0.296***	0.488***
	(2.71)	(1.12)	(4.13)	(3.28)
LTD	-0.794	3.456***	0.439	1.561*
	(-0.89)	(2.68)	(0.94)	(1.92)
CASH	-0.268	1.445	-3.088***	-2.366*
	(-0.17)	(0.65)	(-3.77)	(-1.69)
SIZE	0.201**	0.102	0.021	0.070
	(2.03)	(0.58)	(0.40)	(0.64)
CAPEX	0.071	0.179***	2.329	3.895
	(0.03)	(3.64)	(1.56)	(1.26)
Industry fixed effects	No	Yes	No	Yes
F-Statistics	2.26	8.01	12.69	6.60
(p-values)	(0.03)	(0.00)	(0.00)	(0.00)
R^2 Adjusted	0.053	0.223	0.032	0.062
N	1,408	1,408	1,408	1,408

Final remarks on advancing the corporate governance knowledge in Canada

Overall, the findings of the project reveal the importance of industry competitiveness on the quality and the diversity of governance practices of Canadian firms. Both academics and practitioners should never leave out the fact that governance decision is an interdependent choice and that it cannot be isolated from the industry structure in which the firm is operating as well as the governance decisions of industry peers. They also help stress the importance of general legal environment while firms choose their governance practices. The project, therefore, helps provide a better understanding of how firms choose their governance and consequently aim to contribute to the advancement of the universal practice of good governance.

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APPENDIX A

Equilibrium Model of Governance

We consider a two-stage game in an industry with two firms, *i = 1, 2,* each with a risk-neutral owner and a risk-neutral manager.[1] In the first stage, knowing the true probability distributions of demand, the owners of each firm whose objective is to maximize the expected profits of the firm, that is, shareholders, simultaneously chose governance. In the second stage, the competing managers play an oligopoly game, with each firm's manager knowing his own governance as well as that of the competing firm.[2] Realized demand and costs will be perfectly known and common knowledge among managers. Finally, the owners observe the costs, sales and profits of the firm at the end.[3]

Firms compete a la Cournot with a linear product demand function of $P = a - bQ$ where P is the price, Q is the total industry output i.e., $Q = q_1 + q_2$. We assume that managers of the firms know the demand parameters *a* and *b* at the beginning of stage two, however, at stage one they are unknown to all. [4]

Managers will be given incentive to maximize $O_i = \pi_i + \eta_i(c_i q_i)$, where π_i is realized profits, c_i is the unit cost of production, q_i is the quantity sold and $\eta_i = (1 - \alpha_i)$ where α_i is governance. Note that this is a very general form and it is equivalent to maximizing a linear combination of profits and sales,

$$O_i = \pi_i + \eta_i(c_i q_i) = \alpha_i \pi_i + (1 - \alpha_i) S_i = \alpha_i \pi_i + (1 - \alpha_i)(S_i - c_i q_i + c_i q_i).$$

---

[1] The model follows from Fershtman and Judd (1987) analysis and is analogous to the models used by Kadyrzhanova (2005) and Bris and Brisley (2006).

[2] Repeated play would cause managers to learn one another's governance even if they were not initially common-knowledge. We assume single-shot game with common-knowledge instead of repeated play due to intractability and multiple-equilibria problems in repeated games, which is beyond the scope of this paper.

[3] Governance decisions are rational in the sense that shareholders choose monitoring intensity to maximize expected profits and correctly anticipate the second-stage equilibrium.

[4] This assumption is crucial as it gives managers a role as observers of these variables. Also, if we had no uncertainty, we would end-up with quantity-indexed contracts, which would force the regular Cournot outcome.

We use this equivalent linear contract where the manager maximizes the linear combination of profits and sales. [5]Since Jensen and Meckling (1976), it became a standard to represent manager's objective as maximizing a linear combination of profits and private benefits. The model is analogous to the standard literature as in the model, due to their empire-building nature; managers derive private benefits of control through sales maximization. The idea that managers are empire-builders is introduced by Jensen (1986) and has been documented empirically by a number of studies including Donaldson (1984) and Murphy (1985). In the model, empire-building preferences can arise from the fact that managers care about revenues more than shareholders do (they overweight revenues in their objective). This idea received great attention in the literature. Murphy (1985) documents that changes in managerial compensation are positively related to changes in revenues. Also, Hart (2001) states that higher revenues increase the extent to which managers can extract perks, i.e. non-pecuniary benefits like "fancy offices, private jets etc. that are attractive to management but are of no interest to shareholders".

Governance choices, α_i, is the extent which shareholders induce profit-maximizing behavior on managers. For example, if shareholders give enough discretion to the manager, they can simply approve the manager's proposal of a production plant, this implies $\alpha_i<1$. However, if not, they would examine the plan carefully and make sure that it is implemented on the right scale such that there is no overproduction, i.e., $\alpha_i=1$.

In the model, costs of implementing better governance technology comes from product market costs, i.e., stronger governance leads to loss of potential market shares. Exogenous costs of governance such as fees paid to auditors, other monitoring costs etc. are ignored since they are minor compared to product market costs.[6]

A. Oligopolistic Competition: A Duopoly Case

Firms have different marginal costs of production i.e., c_1, $c_2> 0$ in a homogeneous product, quantity-setting oligopoly. Assume c_1 and c_2 are known perfectly by both owners and

[5] O_i will not be manager's compensation, he is actually paid $A_i + B_iO_i$ with $B_i > 0$. Since he is risk-neutral he tries to maximize O_i, values of A_i and B_i are irrelevant.

[6] The results are also derived assuming an exogenous linear cost of governance, however, it did not change the implications of the results.

managers in both stages. In stage two, the manager of each firm observes a, b, c_1, c_2, α_1 and α_2, and chooses q_i to maximize O_i.

$$O_i = \alpha_i(a - bQ - c_i)q_i + (1 - \alpha_i)(a - bQ)q_i \qquad (1)$$

Given α_1 and α_2, Cournot reaction functions are

$$q_i = \frac{a - bq_j}{2b} - \frac{\alpha_i c_i}{2b} \qquad \text{for } i, j=1,2 \quad i \neq j \quad (2)$$

Stage-two equilibrium quantity and profit are

$$q_i = \left(a - 2\alpha_i c_i + \alpha_j c_j\right)/3b \qquad (3)$$

$$\pi_i = \left(a + \alpha_i c_i + \alpha_j c_j - 3c_i\right)\left(a - 2\alpha_i c_i + \alpha_j c_j\right)/9b \qquad (4)$$

In stage one, firm's owner chooses its governance technology, α_i, while maximizing the expected profit from stage-two equilibrium[7]. Hence, the governance reaction functions are

$$\alpha_i = \frac{3}{2} - \frac{a}{4c_i} - \frac{\alpha_j c_j}{4c_i} \qquad (5)$$

[7] The owner actually maximizes his expected profit net of manager's opportunity costs. Since we assume that the cost of hiring a manager is fixed and unaffected by the risk, this is equivalent to maximizing expected profits.

Theorem1. In a Cournot duopoly equilibrium, where a, b, c_1, c_2 are known at stage one and both firms produce positive quantities, the equilibrium governance choice of firms is

$$\alpha_i = 1 - \frac{a + 2c_j - 3c_i}{5c_i} \qquad \text{for } i, j=1,2 \quad i \neq j \qquad (6)$$

Equation (6) implies that in oligopolistic markets, firms deviate from full monitoring intensity, in other words, they weaken governance, in order to gain a competitive advantage in the market. Profit-maximizing owners will almost never impose their managers to maximize profits when each firm's manager is aware of the competitor's governance choice. This is because if one firm's manager is allowed to maximize the sales instead of profits, she will become an aggressive seller. When this gets communicated to the competitor (could also be through repeated play), it gives each firm's owner an opportunity to be a Stackelberg leader vis-à-vis the other firm's manager when the owner decides on the governance technology. This dual leadership causes both owners to let their managers become more aggressive sellers, leading both owners to choose α_i<1. Therefore, we can claim that imperfect product market competition is the source of limitation for shareholders' control on managers.

In a duopoly where the number of the firms is fixed, we can proxy more competition through market shares. In a more competitive industry, the two firms will have similar market shares. Consider the case with equal market shares where firms sell equal amounts of output. Using equation (3);

$q_i = q_j$ implies $\alpha_i c_i = \alpha_j c_j$

Assuming equal costs, $c_i = c_j = c$, equal market shares imply $\alpha_i = \alpha_j$. Hence, in more competitive industries where firms have similar market shares, firms practice more similar governance. This implies the following testable hypothesis.

Hypothesis. *Variation in firms' governance choices is greater in imperfectly competitive markets*.

B. Perfect Competition

We assume many firms operating with unknown but perfectly correlated uniform costs. Consider n firms where each firm's manager has the objective function same as (1)

$$\max_{q_i} O_i = \alpha_i (a - bQ - c_i) q_i + (1 - \alpha_i)(a - bQ) q_i$$

The reaction function is

$$q_i = \frac{a - b\overline{Q_i} - \alpha_i c}{2b} \text{ where } \overline{Q_i} = Q - q_i \text{ , } i = 1,.....,n \qquad (7)$$

Theorem2. As $n \to \infty$, and the costs are uncertain and equal, $\alpha_i \to 1$, implying firms practice best governance in perfectly competitive market.

Stage-one equilibrium for $\alpha_i = \alpha$,

$$\alpha = 1 - \frac{n-1}{n^2+1}\left(\frac{a\mu - \sigma^2 - \mu^2}{1 + \sigma^2 + \mu^2}\right) \qquad (8)$$

where $\mu = E\{c\}$ and σ^2 is the variance of c.

As $\lim_{n\to\infty} \alpha = 1$, *Theorem3* holds.

When there are many firms operating in an industry, if the industry becomes less concentrated, the deviations from employing strong governance technology disappear. Owners impose strict profit-maximization through a complete governance technology. Thus we obtain;

Corollary. *Firms operating in more competitive industries practice better governance*.

This is intuitively appealing because according to the traditional theory of perfect competition with free entry, firms cannot afford to do anything other than be profit-maximizers. Therefore, in the perfect competition case firms all employ the same governance technology, α, which requires the strongest monitoring intensity and hence strict profit-maximization.

C. Regulation Implications

In this section we show that having regulatory standards are very effective in minimizing variation among firms' governance choices. Let $\bar{\alpha}$ denote the imposed minimum governance standards through regulatory laws and assume that the equilibrium governance choices of firms are different, that is, $\alpha_1 \neq \alpha_2$.

Case 1. If $\bar{\alpha} < \min(\alpha_1, \alpha_2)$, then there will be no change in α_1, α_2.

That is:

$\alpha_1' = \alpha_1$ and $\alpha_2' = \alpha_2$ where α_1', α_2' are post-regulation governance structures.

Hence;

$$\alpha_\mu = \frac{\alpha_1 + \alpha_2}{2} = \alpha_\mu' = \frac{\alpha_1' + \alpha_2'}{2} \text{ and,}$$

$$\alpha_\sigma = \max(\alpha_1, \alpha_2) - \min(\alpha_1, \alpha_2) = \alpha_\sigma' = \max(\alpha_1', \alpha_2') - \min(\alpha_1', \alpha_2')$$

where α_μ' and α_σ' are the post-regulation mean and spread of governance scores respectively. This leads us to following;

Corollary. *If both firms' equilibrium governance choices are already above the imposed minimum standards, there will be no change in their governance technologies. Thus, there will be no change in mean and spread of the industry governance.*

Case 2. If $\bar{\alpha} > \max(\alpha_1, \alpha_2)$, then both will move to minimum standards, $\bar{\alpha}$.

That is:

$$\alpha_1' = \alpha_2' = \bar{\alpha}$$

Hence;

$$\alpha_\mu' = \bar{\alpha} > \alpha_\mu \text{ and,}$$

$$\alpha_\sigma' = 0 < \alpha_\sigma$$

Thus we claim;

Corollary. *If both firms' equilibrium governance choices were below the imposed level, they will both improve their governance and comply with the minimum standards. The resulting mean will be higher and the spread will be zero.*

Case 3. Assume $\alpha_1 > \alpha_2$. If min $(\alpha_1,\alpha_2) < \bar{\alpha} <$ max (α_1,α_2), then α_2 will increase to $\bar{\alpha}$, and α_1 will decrease due to negative reaction which we showed by equation (8).

That is:

$\alpha_2' = \bar{\alpha} > \alpha_2$ and

$\alpha_1' < \alpha_1$

Hence;

$$\alpha_\sigma' = \max(\alpha_1',\alpha_2') - \min(\alpha_1',\alpha_2') < \alpha_\sigma = \max(\alpha_1,\alpha_2) - \min(\alpha_1,\alpha_2)$$

Thus we claim;

Corollary. *If only one firm's equilibrium governance choice was below the imposed level, that firm will improve governance up to the minimum standards. This will be followed by a negative governance reaction of the competitor, ergo, decreasing the spread.*

Thus, in equilibrium;

Hypothesis. *The dispersion of firms' governance choices is lower when there is stronger regulation.*

APPENDIX B

Minimally Acceptable Corporate Governance Standards

This table reports the 44 criteria used to construct GOV44 index. The attributes are divided into four sub-categories: Board, Audit, Anti-takeover and Compensation & Ownership.

BOARD

1. All directors attended 75% of board meetings or had a valid excuse
2. CEO serves on the boards of two or fewer public companies
3. Board is controlled by more than 50% independent outside directors
4. Board size is at greater than five but less than 16
5. CEO is not listed as having a related-party transaction
6. No former CEO on the board
7. Compensation committee comprised solely of independent outsiders
8. Chairman and CEO are separated or there is a lead director
9. Nominating committee comprised solely of independent outsiders
10. Governance committee exists and met in the past year
11. Shareholders vote on directors selected to fill vacancies
12. Governance guidelines are publicly disclosed
13. Annually elected board (no staggered board)
14. Policy exists on outside directorships (four or fewer boards is the limit)
15. Shareholders have cumulative voting rights
16. Shareholder approval is required to increase/decrease board size
17. Majority vote requirement to amend charter/bylaws (not supermajority)
18. Board has the express authority to hire its own advisors
19. Performance of the board is reviewed regularly
20. Board approved succession plan in place for the CEO
21. Outside directors meet without CEO and disclose number of times met
22. Directors are required to submit resignation upon a change in job
23. Board cannot amend bylaws without shareholder approval or can only do so under limited circumstances
24. Does not ignore shareholder proposal
25. Qualifies for proxy contest defenses combination points

AUDIT

26. Consulting fees paid to auditors are less than audit fees paid to auditors
27. Audit committee comprised solely of independent outsiders
28. Auditors ratified at most recent annual meeting

ANTI-TAKEOVER

29. Single class, common
30. Majority vote requirement to approve mergers (not supermajority)
31. Shareholders may call special meetings
32. Shareholder may act by written consent
33. Company either has no poison pill or a pill that was shareholder approved
34. Company is not authorized to issue blank check preferred

COMPENSATION & OWNERSHIP

35. Directors are subject to stock ownership requirements
36. Executives are subject to stock ownership guidelines
37. No interlocks among compensation committee members
38. Directors receive all or a portion of their fees in stock
39. All stock-incentive plans adopted with shareholder approval
40. Options grants align with company performance and reasonable burn rate
41. Company expenses stock options
42. All directors with more than one year of service own stock
43. Officers' and directors' stock ownership is at least 1% but not over 30% of total shares outstanding
44. Repricing is prohibited