

Corporate Governance, Product Market Competition, and Equity Prices

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Introduction

Main work

Main work

- ① This paper examines whether firms in noncompetitive industries benefit more from good governance than do firms in competitive industries.
- ② Weak governance firms have lower equity returns, worse operating performance, and lower firm value, **but only in noncompetitive industries.**
- ③ Weak governance firms have lower labor productivity and higher input costs, and make more value-destroying acquisitions, **but only in noncompetitive industries.**
- ④ Weak governance firms in noncompetitive industries are more likely to be targeted by activist hedge funds, suggesting that investors take actions to mitigate the inefficiency.

Introduction

Motivation

Motivation

- ① Greater competition in the product market increases the amount of information available about the firm, thereby reducing the costs of monitoring. As a result, competition and the market for corporate control become substitutes, as either could reduce agency costs. (Holmstrom, 1982; Hart, 1983; Nalebuff and Stiglitz, 1983)^{1,2,3}
- ② In competitive industries, company managers may be motivated by the competition in the market, hence the demand for additional incentives through good governance to motivate managers may be relatively small.
- ③ Therefore, in contrast, firms in noncompetitive industries, where lack of competitive pressure fails to enforce discipline on managers, **should benefit relatively more from good governance.**
- ④ Is it really the case?

Introduction

Literature

Empirical studies

- Briefly, this paper contributes to prior literature by considering the impact of industry competition characteristic.
- According to existing research, Weak governance is associated with:
 - lower equity returns, firm value and operating performance. ([Gompers, Ishii, and Metrick, 2003, GIM](#))⁴
 - higher agency costs, but investors totally know the effect, so they do not surprise. ([Core, Guay, and Rusticus, 2006, CGR](#))⁵
 - disrupting operations and investments. ([Masulis, Wang, and Xie, 2007](#))⁶

Data

Sample

Data sources

- Investor Responsibility Research Center (IRRC) database.
- CRSP.
- Compustat.

Sample

- 3241 companies from 1990 through 2006.
- Exclude all firms with dual-class shares. ([GIM, 2003](#))⁴
- To match firms to industries, require a nonmissing SIC code in Compustat.

Corporate governance

- The G index ([GIM, 2003](#))⁴. Higher index values imply weaker governance. GIM refer to companies with a G-index of 5 or less as Democracies and to companies with a G-index of 14 or higher as Dictatorships.
- The G-index is obtained from the IRRC database and is available for the years 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006 during the sample period.
- Robustness checks: E-index of [Bebchuk, Cohen, and Ferrell \(2009\)](#)⁷ and the Alternative Takeover Index (ATI) of [Cremers and Nair \(2005, CN\)](#)⁸.

Data

Variable

TABLE I GOVERNANCE PROVISIONS from GIM(2003)⁴

	Percentage of firms with governance provisions in			
	1990	1993	1995	1998
<i>Delay</i>				
<i>Blank check</i>	76.4	80.0	85.7	87.9
<i>Classified board</i>	59.0	60.4	61.7	59.4
<i>Special meeting</i>	24.5	29.9	31.9	34.5
<i>Written consent</i>	24.4	29.2	32.0	33.1
<i>Protection</i>				
<i>Compensation plans</i>	44.7	65.8	72.5	62.4
<i>Contracts</i>	16.4	15.2	12.7	11.7
<i>Golden parachutes</i>	53.1	55.5	55.1	56.6
<i>Indemnification</i>	40.9	39.6	38.7	24.4
<i>Liability</i>	72.3	69.1	65.6	46.8
<i>Severance</i>	13.4	5.5	10.3	11.7
<i>Voting</i>				
<i>Bylaws</i>	14.4	16.1	16.0	18.1
<i>Charter</i>	3.2	3.4	3.1	3.0
<i>Cumulative voting</i>	18.5	16.5	14.9	12.2
<i>Secret ballot</i>	2.9	9.5	12.2	9.4
<i>Supermajority</i>	38.8	39.6	38.5	34.1
<i>Unequal voting</i>	2.4	2.0	1.9	1.9

Data

Variable

TABLE I GOVERNANCE PROVISIONS from GIM(2003)⁴ CONTINUED

	1980s	1990s	2000s	2010s
<i>Other</i>				
<i>Antigreenmail</i>	6.1	6.9	6.4	5.6
<i>Directors' duties</i>	6.5	7.4	7.2	6.7
<i>Fair price</i>	33.5	35.2	33.6	27.8
<i>Pension parachutes</i>	3.9	5.2	3.9	2.2
<i>Poison pill</i>	53.9	57.4	56.6	55.3
<i>Silver parachutes</i>	4.1	4.8	3.5	2.3
<i>State</i>				
<i>Antigreenmail law</i>	17.2	17.6	17.0	14.1
<i>Business combination law</i>	84.3	88.5	88.9	89.9
<i>Cash-out law</i>	4.2	3.9	3.9	3.5
<i>Directors' duties law</i>	5.2	5.0	5.0	4.4
<i>Fair price law</i>	35.7	36.9	35.9	31.6
<i>Control share acquisition law</i>	29.6	29.9	29.4	26.4
Number of firms	1357	1343	1373	1708

- The rise of the junk bond market in the 1980s disturbed this equilibrium by enabling hostile-takeover offers for even the largest public firms. In response, many firms added takeover defenses and other restrictions of shareholder rights. (GIM, 2003)⁴
- Firms with lower G index reserves little power for management. Firms with higher G index reserves extensive power for management and places strong restrictions on shareholders. (GIM, 2003)⁴

Product market competition

- $HHI_{j,t} = \sum_{i=1}^{N_j} s_{ijt}^2$: s_{ijt} is the market share of firm i in industry j in year t.
- Using the 48 industry classification scheme of Fama and French.
- Market shares are computed from Compustat using firms' sales.
- Robustness checks: Four-firm concentration ratio; Four-digit SIC industries; Competition measures provided by the Census Bureau, which include all public and private companies in the United States

Corporate Governance and Equity Returns

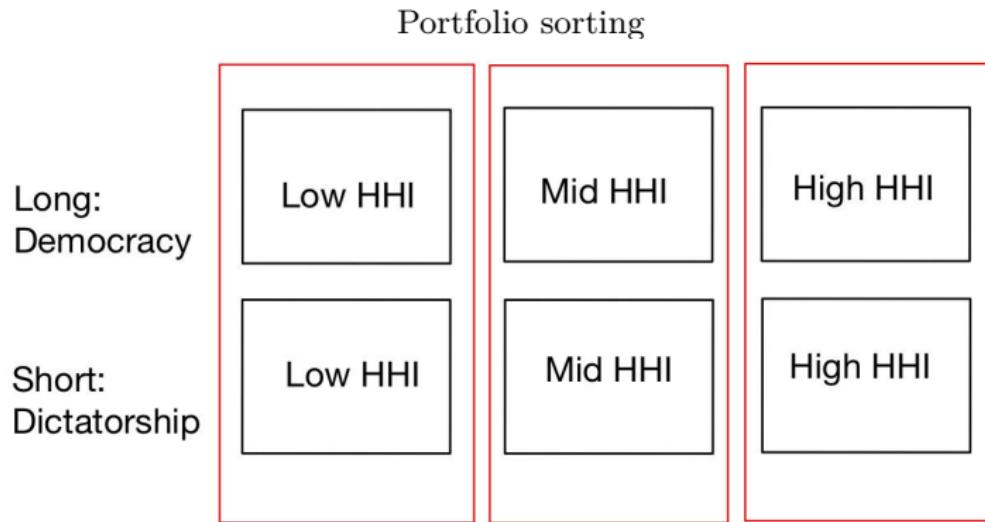
Main results

Portfolio sorting

- C4 model: $R_t = \alpha + \beta_1 RMRF_t + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 UMD_t + \epsilon_t$
- Divide both the Democracy and the Dictatorship portfolio into three equal-sized portfolios by ranking firms according to their HHIs and then sorting them into HHI terciles.
- This yields $2 \times 3 = 6$ portfolios: one Democracy and one Dictatorship portfolio for each HHI tercile.
- For each HHI tercile, construct a Democracy–Dictatorship hedge portfolio analogous to GIM.

Corporate Governance and Equity Returns

Main results



Corporate Governance and Equity Returns

Main results

Table I Main Results

	Value-Weighted Democracy–Dictatorship Hedge Portfolios				Equally Weighted Democracy–Dictatorship Hedge Portfolios			
	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile
Panel A: Main Sample Period (1990–1999)								
α	0.66**	0.30	0.64*	1.47***	0.48**	0.28	0.42	0.72**
<i>t</i> -statistic	(2.57)	(0.90)	(1.70)	(3.38)	(2.19)	(0.85)	(1.27)	(2.38)
Panel B: Alternative Sample Periods								
[1] 1990–2006	0.24	0.06	0.09	0.99**	0.29*	0.00	0.12	0.73***
	(1.22)	(0.21)	(0.30)	(2.55)	(1.77)	(0.00)	(0.48)	(3.12)
[2] 2000–2006	−0.21	−0.41	−0.19	0.26	0.20	−0.36	0.08	0.88**
	(0.65)	(0.87)	(0.41)	(0.40)	(0.76)	(0.91)	(0.19)	(2.24)

- The VW(EW) alpha is small and insignificant in the lowest HHI tercile (competitive industries), is monotonically increasing across HHI terciles, and is large and significant in the highest HHI tercile.
- The results show that the positive effects of good governance on stock market performance are relatively stronger in noncompetitive industries, which is consistent with the argument that governance and competition are substitutes.

Corporate Governance and Equity Returns

Omitted Variable Bias

Fama–MacBeth Return Regressions

- $r_{i,t+1} = \alpha_{i,t} + \beta'(G_{i,t} \times I_{i,t}) + \gamma' X_{i,t} + \epsilon_{i,t+1}$
- r_{it} is the return on firm i's stock in month t, G_{it} is either the G-index or a Dictatorship dummy, I_{it} is a (3×1) vector of HHI dummies indicating whether the HHI of firm i in month t lies in the lowest, medium, or highest tercile of its empirical distribution.
- X_{it} includes control variables: firm size; book-to-market ratio; stock price; past returns, trading volume; a NASDAQ dummy; a S&P 500 dummy; dividend yield; sales growth over the previous 5 years; institutional ownership; idiosyncratic volatility.

Corporate Governance and Equity Returns

Omitted Variable Bias

Table V Fama-MacBeth Return Regressions

	[1]	[2]	[3]	[4]
G-index	-0.04 (1.28)			
G-index × HHI (low)		-0.02 (0.21)		
G-index × HHI (medium)		-0.02 (0.59)		
G-index × HHI (high)		-0.12* (1.93)		
Dictatorship			-0.77** (2.43)	
Dictatorship × HHI (low)				-0.24 (0.60)
Dictatorship × HHI (medium)				-1.00* (1.72)
Dictatorship × HHI (high)				-1.77** (2.52)
HHI (medium)		0.01 (0.01)		0.67 (1.33)
HHI (high)		0.78 (0.99)		0.82 (1.64)
Number of months	112	112	112	112
Number of observations	122,595	122,595	21,299	21,299

- The coefficient is always small and insignificant in the lowest HHI tercile, is monotonic across HHI terciles, and is large and significant in the highest HHI tercile.

Corporate Governance and Equity Returns

Analysts' Earnings Forecasts

Analysts' Earnings Forecasts

- One potential explanation is that weak governance gives rise to agency costs whose magnitude is underestimated by investors.
- If investors do not understand the implications of governance for future operating cash flows, they will be surprised when the realized earnings of weak (strong) governance firms are low (high) relative to their earnings forecasts.
- The forecast error test assumes that analysts' forecasts proxy for investors' forecasts.
- Data on analysts' earnings forecasts are obtained from the Institutional Brokers' Estimate System (I/B/E/S), Measuring analysts' forecasts 8 months before the fiscal year's end. ([CGR, 2006](#))⁵

Corporate Governance and Equity Returns

Analysts' Earnings Forecasts

Table VI Analysts' Forecast Errors

	Actual [1]	Forecast [2]	Error [3]	Actual [4]	Forecast [5]	Error [6]
Dictatorship	-0.57* (1.66)	-0.48 (1.25)	-0.09 (0.68)			
Dictatorship × HHI (low)				0.23 (0.31)	0.13 (0.19)	0.10 (0.72)
Dictatorship × HHI (medium)				0.11 (0.21)	0.04 (0.08)	0.07 (0.31)
Dictatorship × HHI (high)				-2.02*** (2.71)	-1.59** (2.16)	-0.43* (1.81)
HHI (medium)				0.79 (1.14)	0.57 (1.12)	0.22 (0.59)
HHI (high)				2.30*** (2.71)	0.99* (1.70)	1.31** (2.15)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1,071	1,071	1,071	1,071	1,071	1,071
Adj. R^2	0.40	0.43	0.11	0.40	0.43	0.11

- Thus, analysts underestimate the effect of governance on earnings in precisely those industries in which governance matters for earnings, namely, noncompetitive industries.

Corporate Governance, Firm Value, and Operating Performance

Corporate Governance and Firm Value

Corporate Governance and Firm Value

- To provide further evidence, following (GIM, 2003)⁴ and (CGR, 2006)⁵, the authors examine whether any of these relationships are different in competitive versus noncompetitive industries.
- $Q_{it}^* = \alpha_j + \alpha_t + \beta'(G_{it} \times I_{it}) + \gamma'X_{it} + \epsilon_{it}$
- Q_{it}^* is the industry-adjusted Tobin's Q of firm i in year t. I_{it} is a (3×1) vector of HHI dummies, α_j and α_t are industry and year fixed effects, and X_{it} is a vector of control variables.

Corporate Governance, Firm Value, and Operating Performance

Corporate Governance and Firm Value

Table VII Tobin's Q

	[1]	[2]
G-index	-0.036*** (3.46)	
G-index × HHI (low)		-0.005 (0.33)
G-index × HHI (medium)		-0.043* (1.77)
G-index × HHI (high)		-0.065*** (3.17)
HHI (medium)		0.463 (1.42)
HHI (high)		0.671** (2.40)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Number of observations	20,051	20,051
Adj. R^2	0.08	0.08

- An increase in the G-index by one index point is associated with a 3.6% lower value for Tobin's Q.

Corporate Governance, Firm Value, and Operating Performance

Corporate Governance and Operating Performance

Corporate Governance and Operating Performance

- *Operating performance_{i,t+1} = α_j + α_t + β'(G_{i,t} × I_{i,t}) + γ'X_{i,t} + ε_{i,t+1}*
- Dependent variable is now either ROA, net profit margin (NPM), sales growth, or ROE.

Corporate Governance, Firm Value, and Operating Performance

Corporate Governance and Operating Performance

Table VIII Operating Performance

	ROA		NPM		Sales Growth		ROE	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
G-index	-0.066*** (2.88)		-0.108*** (3.47)		-0.064** (2.35)		-0.010 (0.30)	
G-index × HHI (low)		-0.001 (0.02)		-0.011 (0.21)		-0.004 (0.07)		0.054 (0.87)
G-index × HHI (medium)		-0.076** (2.02)		-0.139** (2.14)		-0.096*** (2.65)		-0.004 (0.05)
G-index × HHI (high)		-0.137*** (4.34)		-0.192*** (2.87)		-0.109*** (3.06)		-0.099* (1.93)
HHI (medium)	0.877 (1.48)		1.518 (1.21)		1.414** (2.05)		0.771 (0.65)	
HHI (high)		1.051* (1.75)		1.633* (1.87)		1.975*** (2.72)		1.926* (1.74)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	17,699	17,699	17,699	17,699	17,699	17,699	17,699	17,699
Adj. R ²	0.32	0.32	0.23	0.23	0.24	0.24	0.24	0.24

- Negative coefficients on the G-index imply that weak governance firms have on average lower ROA, net profit margins and lower sales growth. Moreover, the coefficient on the G-index is always small and insignificant in the lowest HHI tercile, and is large and significant in the highest HHI tercile.

Agency Costs of Weak Corporate Governance

Capital Expenditures and Acquisition Activity

Capital Expenditures and Acquisition Activity

- To gain a better understanding of the nature of these agency costs, we now explore in more detail the relationship between (i) governance and investment activity ([Masulis, Wang, and Xie, 2007](#))⁶ and (ii) governance and productive efficiency.
- Using the same specification as in our operating performance regressions, except that the dependent variable is now either capital expenditures or some measure of acquisition activity.

Agency Costs of Weak Corporate Governance

Capital Expenditures and Acquisition Activity

Table IX Capital Expenditures and Acquisition Activity

	Capex		Acquisition Ratio		Acquisition Count		Acquisition Likelihood		CAR(-2, +2)	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
G-index	0.032** (2.35)		1.176*** (4.38)		3.449*** (3.78)		2.256*** (4.48)		-0.074* (1.67)	
G-index × HHI (low)		0.019 (0.96)		0.895 (1.59)		1.659 (0.91)		1.362 (0.98)		-0.060 (0.78)
G-index × HHI (medium)		0.025 (0.97)		1.157** (2.04)		4.008** (2.54)		2.603** (2.00)		-0.043 (0.44)
G-index × HHI (high)		0.053** (2.08)		1.495** (2.51)		4.557** (2.30)		2.832** (2.26)		-0.124* (1.74)

(continued)

- **Acquisition ratio:** The sum of the value of all acquisitions made by a firm in a given year divided by the firm's average market capitalization in that year.
- **Likelihood of making an acquisition:** A dummy variable that equals one if the firm makes at least one acquisition during the year and zero otherwise.
- Weak governance firms make more acquisitions and experience significantly lower CARs only in noncompetitive industries.

Agency Costs of Weak Corporate Governance

Labor Productivity and Cost Efficiency

Corporate Governance and Cost Efficiency

- An alternative hypothesis is that managers of poorly governed firms enjoy the quiet life by avoiding cognitively difficult activities ([Bertrand and Mullainathan, 2003](#))⁹, such as fighting with labor unions, haggling with input suppliers, and expending effort to improve labor productivity.

Agency Costs of Weak Corporate Governance

Labor Productivity and Cost Efficiency

Table X Labor Productivity and Cost Efficiency

	Labor Productivity		Costs of Goods Sold		Wages		SG&A		R&D	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
G-index	-0.012*** (3.66)		0.236** (2.47)		0.066 (1.61)		0.095 (0.96)		-0.052* (1.75)	
G-index × HHI (low)		-0.008 (1.35)		0.140 (1.14)		0.051 (0.84)		0.045 (0.35)		-0.059 (1.19)
G-index × HHI (medium)		-0.014** (2.51)		0.228 (1.28)		0.059 (1.27)		0.117 (0.68)		-0.037 (1.15)
G-index × HHI (high)		-0.015*** (2.91)		0.361** (2.49)		0.090 (1.42)		0.101 (0.70)		-0.064 (1.13)
HHI (medium)		0.044 (0.53)		-0.824 (0.40)		-0.126 (0.23)		-0.576 (0.29)		0.028 (0.09)
HHI (high)		0.064 (0.91)		-2.160 (1.27)		-0.397 (0.46)		-0.611 (0.33)		0.619 (0.86)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	17,387	17,387	17,699	17,699	2,249	2,249	13,672	13,672	9,340	9,340
Adj. R^2	0.16	0.16	0.11	0.11	0.79	0.79	0.15	0.15	0.17	0.17

- **Labor Productivity:** Logarithm of sales divided by the number of employees and deflated by the consumer price index from the U.S. Bureau of Labor Statistics.
- Weak governance firms have on average lower labor productivity and higher input costs, and the coefficient on the G-index is monotonic across HHI terciles.

Hedge Fund Activism

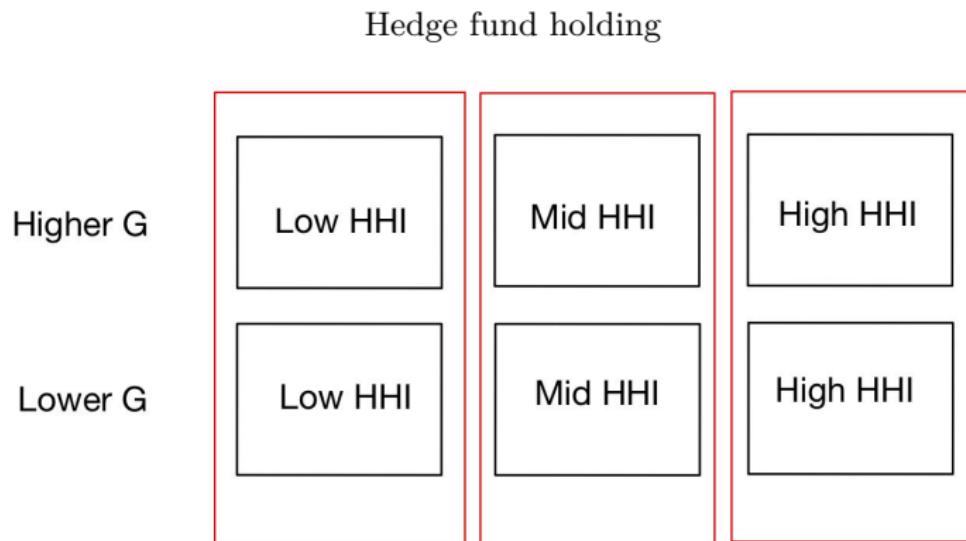
Hedge Fund Activism

Hedge Fund Activism

- Prior studies find little evidence that institutional investors bring about significant improvements in the companies they target, but the opposite is true of activist hedge funds. ([Gillan and Starks, 2007](#); [Brav et al., 2008](#); [Klein and Zur, 2009](#))^{10,11,12}
- The data are based on Schedule 13D filings, which investors must file with the SEC within 10 days of acquiring more than 5% of any class of securities of a publicly traded company if they have an interest in influencing the company's management.
- The data include 1059 hedge fund interventions from 2001 to 2006 involving 882 unique target companies.
- We sort firms into two governance groups based on whether the G-index lies above or below the median. We then divide each governance group into three equal-sized groups by ranking firms according to their HHIs and then sorting them into HHI terciles

Corporate Governance and Equity Returns

Main results



Hedge Fund Activism

Hedge Fund Activism

Table XI Hedge Fund Activism

Panel A: Empirical Relation between the G-Index and the HHI				
	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	
G-index > median				
Mean HHI	0.03	0.05	0.11	
Median HHI	0.03	0.05	0.08	
Range of HHI values	[0.02, 0.04]	[0.04, 0.06]	[0.06, 0.82]	
G-index ≤ median				
Mean HHI	0.03	0.05	0.11	
Median HHI	0.03	0.05	0.08	
Range of HHI values	[0.02, 0.04]	[0.04, 0.06]	[0.06, 0.82]	
Panel B: Percentage of Firms Targeted by Activist Hedge Funds				
	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	Diff. in Means (Highest – Lowest)
G-index > median	1.90%*** (0.000)	2.93%*** (0.000)	3.14%*** (0.000)	1.24%** (0.029)
G-index ≤ median	1.51%*** (0.000)	1.78%*** (0.000)	1.85%*** (0.000)	0.34% (0.140)
Diff. in means	0.49% (0.387)	1.15%** (0.026)	1.29%** (0.016)	

- Panel B reports the percentage of firms targeted by activist hedge funds for each of the $2 \times 3 = 6$ groups sorted by the G-index and the HHI.
- High G-index firms are more likely to be targeted than are low G-index firms, and the difference is monotonic across HHI terciles.

Hedge Fund Activism

Hedge Fund Activism

Table XI Hedge Fund Activism (continued)

Panel C: Changes in the G-Index Following a Hedge Fund Intervention

	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	Diff. in Means (Highest – Lowest)
G-index > median	0.168 (0.303)	-0.104 (0.242)	-0.264* (0.054)	-0.432* (0.073)
G-index \leq median	0.146 (0.529)	-0.009 (0.887)	-0.104 (0.726)	-0.250 (0.522)
Diff. in means	0.022 (0.935)	-0.095 (0.401)	-0.160 (0.606)	

- Panel C shows the results of examining whether being targeted by an activist hedge fund leads to a subsequent change in the G-index.
- As can be seen, ΔG is only significant in one group, namely, the group with high G-index firms in the highest HHI tercile

Conclusions

Conclusions

- ① Weak governance firms, as measured by the G-index, have lower equity returns, worse operating performance, and lower firm value, but only in noncompetitive industries.
- ② Weak governance firms have lower labor productivity, higher input costs, and make more value-destroying acquisitions, but, again, only in noncompetitive industries.
- ③ Weak governance firms in noncompetitive industries are more likely to be targeted by activist hedge funds, suggesting that investors take actions to mitigate the inefficiency.

A few comments

A few comments

- ① Nice story.
- ② The connection.
- ③ The industry factor model? ([Pástor and Stambaugh, 2002](#))¹³
- ④ Are there any inconsistencies? Are really every type of investors surprised?
Institutional investors vs detail investors, hedge fund vs mutual fund, smart money vs dumb money. ([Akbas et al., 2015](#))¹⁴
- ⑤ Channels between fundamental and capital market performance? Agency cost and Information transparency? or News? ([Kothari et al., 2009; Kim et al., 2011](#))^{15,16}

Appendix

Industry Effects

Concerning Industry Effects

- One might be worried that our results are not driven by the interaction between governance and competition, but rather that they might reflect a direct effect of competition on equity returns.
- **Hou and Robinson (2006)¹⁷** document that firms operating in concentrated industries earn significantly lower equity returns even after controlling for the usual four risk factors.
- Consider: Including the Hou-Robinson concentration premium as an additional risk factor; Using industry-adjusted stock returns.

Appendix

Industry Effects

Table III Industry Effects

	Value-Weighted Democracy–Dictatorship Hedge Portfolios				Equally Weighted Democracy–Dictatorship Hedge Portfolios			
	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile
	Panel A: 48 FF Industries							
[1] 4-factor model	0.66** (2.57)	0.30 (0.90)	0.64* (1.70)	1.47*** (3.38)	0.48** (2.19)	0.28 (0.85)	0.42 (1.27)	0.72** (2.38)
[2] 5-factor model	0.66** (2.60)	0.30 (0.91)	0.64* (1.69)	1.47*** (3.45)	0.48** (2.18)	0.28 (0.85)	0.42 (1.27)	0.72** (2.39)
[3] 4-factor model with industry- adjusted returns	0.60** (2.10)	0.38 (0.92)	0.49 (1.38)	1.15*** (2.72)	0.42** (2.13)	0.31 (1.02)	0.28 (0.95)	0.67** (2.29)
[4] 5-factor model with industry- adjusted returns	0.60** (2.10)	0.39 (0.93)	0.49 (1.38)	1.15*** (2.76)	0.42** (2.13)	0.31 (1.01)	0.28 (0.95)	0.67** (2.29)
Panel B: Four-Digit SIC Industries								
[5] 4-factor model	0.69*** (2.71)	0.47 (1.49)	0.93** (2.11)	0.98*** (2.65)	0.48** (2.20)	0.29 (0.96)	0.57 (1.47)	0.63** (2.24)
[6] 5-factor model	0.66** (2.61)	0.44 (1.41)	0.92** (2.07)	0.92** (2.53)	0.46** (2.12)	0.28 (0.93)	0.54 (1.40)	0.61** (2.17)
[7] 4-factor model with industry- adjusted returns	0.65** (2.37)	0.32 (0.90)	0.61 (1.60)	0.75** (2.11)	0.47*** (2.70)	0.25 (0.95)	0.58 (1.64)	0.59** (2.28)
[8] 5-factor model with industry- adjusted returns	0.63** (2.29)	0.29 (0.82)	0.62 (1.61)	0.70** (1.99)	0.47*** (2.66)	0.25 (0.93)	0.57 (1.60)	0.58** (2.23)

Appendix

Theory Literature

Competition reduces managerial slack

- Managers have to work hard to fulfill their given profit target. (Hart, 1983)
- Increasing competitors may provide additional information that can be used to mitigate moral hazard. (Holmstrom, 1982; Nalebuff and Stiglitz, 1983)
- Threat-of-liquidation effect. (Schmidt, 1997)
- Firms exiting promise surviving firm produces larger output, making it unambiguously optimal to give managers stronger monetary incentives. (Raith, 2003)

Competition increase managerial slack

- Reduction in profits caused by competition may lower the value of a cost reduction and thus also the benefit of inducing higher effort. (Schmidt, 1997)
- If competition increases due to a reduction in entry costs. New firms enter the market, each firm produces less output, and it becomes optimal to give managers weaker monetary incentives. (Raith, 2003)

Appendix

Literature

Other researches about competition and governance

- Relationships with customers and suppliers. ([Cremers, Nair, and Peyer, 2008](#))¹⁸
- Provisions that allow managers to delay takeovers. ([Kadyrzhanova and Rhodes-Kropf, 2010](#))¹⁹
- Product and input market regulations. ([Guadalupe and Pérez-González, 2010](#))²⁰

Appendix

Variable

Table IA.I Empirical Relation between the G-index and the HHI

<i>Panel (A): Empirical Distribution of the HHI for Democracy and Dictatorship Firms</i>					
	First HHI Quintile	Second HHI Quintile	Third HHI Quintile	Fourth HHI Quintile	Fifth HHI Quintile
Democracy Firms ($G \leq 5$)					
Mean HHI	0.02	0.04	0.05	0.07	0.15
Median HHI	0.02	0.04	0.05	0.07	0.11
Range of HHI Values	[0.01, 0.03]	[0.03, 0.04]	[0.04, 0.06]	[0.06, 0.08]	[0.08, 0.58]
Dictatorship Firms ($G \geq 14$)					
Mean HHI	0.02	0.04	0.05	0.07	0.16
Median HHI	0.02	0.04	0.05	0.07	0.11
Range of HHI Values	[0.01, 0.03]	[0.03, 0.05]	[0.05, 0.06]	[0.06, 0.08]	[0.08, 0.58]
<i>Panel (B): Empirical Distribution of the G-index across Different HHI Quintiles</i>					
	First HHI Quintile	Second HHI Quintile	Third HHI Quintile	Fourth HHI Quintile	Fifth HHI Quintile
Mean G-Index	9.22	9.00	9.33	9.25	9.19
Median G-Index	9.00	9.00	9.00	9.00	9.00
Range of G-Index Values	[2, 17]	[2, 17]	[2, 19]	[2, 18]	[2, 17]

Appendix

Robustness

II Robustness

	Value-Weighted Democracy–Dictatorship Hedge Portfolios				Equally Weighted Democracy–Dictatorship Hedge Portfolios			
	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile
[1] HHI (Compustat, 48 FF)	0.66** (2.57)	0.30 (0.90)	0.64* (1.70)	1.47*** (3.38)	0.48** (2.19)	0.28 (0.85)	0.42 (1.27)	0.72** (2.38)
[2] Top 4 (Compustat, 48 FF)	0.66** (2.57)	0.15 (0.44)	0.62* (1.71)	1.35*** (3.19)	0.48** (2.19)	0.32 (0.97)	0.55 (1.59)	0.56** (2.08)
[3] HHI (Census, Manuf. Ind.)	0.93** (2.43)	0.02 (0.03)	0.69 (1.33)	1.50** (2.46)	0.51* (1.82)	0.31 (0.75)	0.44 (1.12)	0.81* (1.74)
[4] Top 4 (Census, Manuf. Ind.)	0.91** (2.39)	0.00 (0.00)	0.60 (1.11)	1.11* (1.93)	0.51* (1.80)	0.41 (0.94)	0.36 (0.80)	0.76* (1.67)
[5] E-index	0.74*** (4.09)	0.02 (0.09)	0.84*** (2.92)	1.53*** (3.42)	0.47*** (3.01)	0.21 (0.89)	0.53** (2.10)	0.68*** (3.10)
[6] ATI index	0.29* (1.91)	0.06 (0.25)	0.21 (0.98)	0.64** (2.13)	0.33** (2.53)	0.13 (0.63)	0.42** (2.10)	0.44** (2.19)
[7] High Inst. ownership	0.77*** (3.02)	0.28 (0.84)	0.86** (2.06)	1.60*** (3.36)	0.49* (1.84)	0.02 (0.04)	0.57 (1.41)	0.81** (2.05)
[8] Low Inst. ownership	0.35 (0.94)	0.11 (0.21)	0.17 (0.31)	0.93* (1.70)	0.48 (1.61)	0.28 (0.55)	0.36 (0.86)	0.72 (1.32)
[9] Excluding “New Economy”	0.43* (1.71)	0.27 (0.79)	0.41 (1.05)	0.82** (2.04)	0.43** (2.03)	0.24 (0.71)	0.35 (1.10)	0.72** (2.35)

- Alternative measures of product market competition, alternative measures of corporate governance, institutional ownership, exclude “new economy” firms.

Appendix

Omitted Variable Bias

Alternative Asset Pricing Models

- One might be worried that the abnormal return to the Democracy–Dictatorship hedge portfolio may be driven by an omitted variable bias. If the G-index is correlated with firm or other characteristics that are priced during the sample period but that are not captured by the asset pricing model.
- Consider Kenneth French's instead of Carhart's momentum factor. The co-skewness factor of [Harvey and Siddique \(2000\)](#)²¹, the aggregate volatility factor of [Ang et al. \(2006\)](#)²², the downside risk factor of [Ang, Chen, and Xing \(2006\)](#)²³, the liquidity factor of [P'astor and Stambaugh \(2003\)](#)²⁴, and takeover factor of [Cremers, Nair, and John \(2009, CNJ\)](#)²⁵.

Appendix

Omitted Variable Bias

Table IV Alternative Asset Pricing Models

	Value-Weighted Democracy–Dictatorship Hedge Portfolios				Equally Weighted Democracy–Dictatorship Hedge Portfolios			
	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile	All Firms	Lowest HHI Tercile	Medium HHI Tercile	Highest HHI Tercile
[1] Market model	0.48*	0.17	0.49	1.17**	0.15	-0.03	0.08	0.39
(1.74)	(0.49)	(1.34)	(2.51)	(0.59)	(0.09)	(0.25)		(1.16)
[2] French's momentum factor	0.47*	0.10	0.61	1.13**	0.23	0.08	0.10	0.53*
(1.82)	(0.29)	(1.56)	(2.56)	(0.99)	(0.23)	(0.29)		(1.69)
[3] Co-skewness factor	0.65**	0.30	0.65*	1.42***	0.46**	0.26	0.40	0.71**
(2.52)	(0.89)	(1.74)	(3.33)	(2.12)	(0.78)	(1.23)		(2.33)
[4] Aggregate volatility factor	0.72***	0.27	0.76**	1.59***	0.61***	0.42	0.59*	0.80**
(2.77)	(0.78)	(2.02)	(3.61)	(2.85)	(1.25)	(1.83)		(2.61)
[5] Downside risk factor	0.69**	0.22	1.07**	1.58***	0.62**	0.43	0.63	0.81**
(2.08)	(0.51)	(2.22)	(2.81)	(2.19)	(0.99)	(1.55)		(2.10)
[6] Liquidity factor	0.57**	0.26	0.61	1.32***	0.44**	0.28	0.36	0.68**
(2.31)	(0.77)	(1.62)	(3.15)	(2.02)	(0.83)	(1.10)		(2.23)
[7] Takeover factor	0.31	-0.05	0.23	1.41***	0.18	-0.04	0.07	0.54
(1.04)	(0.12)	(0.50)	(2.75)	(0.75)	(0.10)	(0.19)		(1.57)

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