Governance Indices and Valuation Multiples: Which Causes Which?

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Key words: Governance, governance index, causality

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Abstract

Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2004) document that valuation multiples during the 1990s are significantly related to governance indices purporting to measure the quality of a firm's governance structure. The results are consistent with two hypotheses: (i) governance affects valuation multiples and (ii) valuation multiples affect governance. We find evidence consistent with the latter explanation. Specifically, we find that (i) valuation multiples during the early 1980s, a period preceding the adoption of the provisions comprising the governance indices, are highly correlated with valuation multiples during the 1990s, (ii) valuation multiples during the early 1980s are significantly related to governance indices during the 1990s, and (iii) after controlling for valuation multiples during 1980-1985, no significant relation exists between contemporaneous valuation multiples and governance indices during the 1990s. The results support the hypothesis that causation runs from valuation multiples to governance, not vice versa.

Two recent papers on corporate governance document a significant relation between market-to-book ratios and indices purporting to measure the quality of a firm's governance structure. Gompers, Ishii and Metrick (2003), hereafter referred to as "GIM," construct a firm-level governance index ("the GIM Index") based on the prevalence of 24 governance provisions in firms surveyed by the Investor Responsibility Research Center, Inc. (IRRC). The authors find that firms with higher index values, reflecting "poor" governance, have significantly lower valuation multiples than firms with lower index values. Bebchuk, Cohen and Ferrell (2004), hereafter referred to as "BCF," find similar results for a governance index ("the BCF Index") consisting of a smaller set of provisions.

The results in the two papers show a correlation between governance indices and valuation multiples, but do not establish whether causation runs from governance to valuation or vice versa. One explanation consistent with the results is that governance provisions which supposedly entrench managers (e.g., poison pills, staggered boards) adversely affect firm value. An alternative explanation is that causation runs in the opposite direction -- firms with low valuation multiples are likely to adopt provisions that comprise the governance indices because they are likely to be targets of control contests.

Both papers recognize that causality cannot be inferred from their results. GIM state that "the data do not allow strong conclusions about causality," adding that "multiple causal explanations have starkly different policy implications and stand as a challenge for future research." BCF state that "one important question that remains for future work concerns causation. To what extent, if any, does the correlation … result from entrenchment producing lower value? And to what extent, if any, does this correlation simply reflect the tendency of managers of low-value firms to entrench themselves?"

This paper develops a test that distinguishes between the two explanations for the observed relation between governance indices and firm value. The test is prompted by the observation that the governance provisions comprising the GIM and BCF indices were either nonexistent or rarely used before 1986.

Several papers document that modern anti-takeover provisions evolved during the mid-to-late 1980s in response to a proliferation of hostile takeovers for U.S. corporations. For example, Comment and Schwert (1995) document that only a trivial percentage of firms had poison pills before 1986. They also document that the percentage of firms protected by state takeover laws was small before 1986, but increased substantially afterwards. Danielson and Karpoff (1998) document a large and broad-based increase in the use of twenty corporate governance provisions in the mid-to-late 1980s. Other studies documenting a widespread adoption of various anti-takeover provisions after the early 1980s are Jarrell and Poulsen (1987), Ryngaert (1988), and Malatesta and Walkling (1988).

The fact that the governance provisions comprising the GIM and BCF indices were rare in the early 1980s provides an opportunity to test whether causation runs from the governance indices to valuation multiples or vice versa. Governance provisions that were nonexistent or rarely used until the mid-to-late 1980s could not have caused a diminution in valuation multiples during the early 1980s. However, if causation runs from valuation multiples to governance indices then a significant relation between valuation multiples in the early 1980s and subsequent values of the governance indices is expected.

Using a sample of 3154 firms covered by the IRRC, we find a significant relation between market-to-book ratios during 1980-1985 and the GIM and BCF indices during the 1990s, which is consistent with the hypothesis that causation runs from market-to-book ratios to

the governance indices. Furthermore, after controlling for market-to-book ratios during 1980-1985, no significant relation exists between contemporaneous market-to-book ratios and governance indices during the 1990s. This result also supports the hypothesis that valuation multiples affect governance indices, not vice versa.

The paper is organized as follows. Section I describes the sample and data used in the analysis. Section II reports the empirical results. Section III contains concluding comments.

I. Sample and data

A. Sample

The sample for our analysis is drawn from the IRRC database used by GIM and BCF. We use six of the seven survey years in the IRRC database – those conducted in 1990, 1993, 1995, 1998, 2000 and 2002. Each survey covers over 1500 firms. The union of the samples surveyed in these six years consists of 3154 firms. Seven hundred and eleven firms appear in all six surveys.

B. Data

The IRRC database is used to calculate both the GIM and BCF governance indices. The GIM index is readily available from the IRRC database as it measures the number of the 24 governance provisions adopted by a firm. The BCF index is calculated as the number of provisions identified by BCF as effective entrenchment devices adopted by a firm. BCF identify six provisions as effective entrenchment devices: staggered boards, limits on amending by-laws, limits on amending charters, supermajority requirements, poison pills, and golden parachutes.

We collected data to replicate the regression analyses in GIM and BCF in which Tobin's q is estimated as a function of a number of variables, including the contemporaneous value of the governance indices. Instead of using Tobin's q as the dependent variable, we use the market–to-book value of assets, which is highly correlated with Tobin's q.[1] Following GIM and BCF, we calculate the market value of assets as the book value of assets plus the market value of common stock less the sum of the book value of common stock and balance sheet deferred taxes. These values are measured as of the end of each calendar year.

Following GIM, two dummy variables are included as independent variables in the regression analyses. The first dummy variable takes the value of one if the company is incorporated in Delaware and zero otherwise (DELAWARE). The second dummy variable takes the value of one if the firm is included in the S&P 500 Index and zero otherwise (SP500). Data on Delaware incorporation is available from the IRRC database and data on inclusion in S&P 500 is extracted from Standard and Poor's Compustat database.

We also include other independent variables included by GIM and BCF in their regression analyses. Firm age is the number of years since the firm went public (AGE). Firm size is measured as the book value of assets (ASSETS). Other accounting variables included as independent variables are return on assets (ROA); capital expenditure as a ratio of book value of assets (CAPEX); leverage, measured as the ratio of long-term debt plus debt due in one year to the book value of assets (LEV); and the ratio of research and development expenditures to total sales (R&D)[2]. All financial accounting data is taken from Compustat. Data on market-to-book ratios and leverage are winsorized at levels of 5% and 95% to mitigate the effect of outliers.

II. Empirical results

A. Replicating GIM and BCF

We replicate the GIM and BCF results by regressing market-to-book ratios on the contemporaneous values of the GIM and BCF governance indices for each year during 1990-2003. The regression results are contained in Table I.

[Table I here]

Panel A of Table I presents the results associated with replication of the GIM analysis. The panel shows a significant negative association between market-to-book ratio and the contemporaneous GIM index in each year of the sample period. The coefficients range from -0.035 to -0.004. Eleven of the 14 estimated coefficients are significant at the 0.01 level, one is significant at the 0.05 level, and one is significant at the 0.10 level. Only one estimated coefficient on the GIM index is not statistically significant.

The coefficient on ASSET is negative and significant for all years. The coefficient on AGE is always negative and significant at the 0.01 level for 10 of the 14 years. The coefficient on SP500 is positive and significant at the 0.01 level for all 14 years. The coefficient on DELAWARE is generally not significant.

The corresponding results for replication of BCF's analysis are contained in panels B(1), which reports results from a median regression model, and B(2), which reports results from an ordinary least squares (OLS) model, of Table I. The results in panel B1 show that the coefficient on the BCF index, always negative, is significant at the 0.01 level in seven of the 14 years. It also is significant at the 0.05 level in one year and the 0.10 level in another year. In five of the years, the coefficient on the BCF index is not significant.

The coefficient on ROA is positive and significant at the 0.01 level in all years. The coefficient on RD is positive and significant at the 0.01 level in most years. The coefficient on AGE is negative and significant at the 0.10 level or better in nine of the 14 years. The estimated coefficients of CAPEX and RD are also significant at the 0.10 level or better for more than one-half of the years in the sample period.

Similar results hold for the OLS regression model, as shown in panel B(2) of Table I.

Overall, the results in Table I show a significant negative relation between market-to-book ratios and the contemporaneous values of the GIM and BCF indices. These results, similar to those reported in GIM and BCF, establish a correlation between market-to-book ratios and the governance indices, but not a causal relation between the two variables. We now turn to a test that addresses the issue of causation.

B. Testing the causal relation between governance indices and market-to-book ratios

To test the causal relation between governance indices and market-to-book ratios, we examine the relation between market-to-book ratios during the early 1980s and the subsequent value of the GIM and BCF governance indices. A significant relation between the two variables would be consistent with the hypothesis that causation runs from market-to-book ratios to the governance indices, not vice versa. Market-to-book ratios in the early 1980s could not have been affected by the adoption of the provisions in the GIM and BCF indices because these provisions were nonexistent or rarely used at the time. However, market-to-book ratios during the early 1980s could be related to the subsequent value of the GIM and BCF governance indices if (i) market-to-book ratios are serially correlated and (ii) if firms with low market-to-book ratios are more likely than other firms to adopt the provisions comprising the governance indices.

In addition, we test whether the contemporaneous relation between market-to-book ratios and the governance indices during the 1990s holds after controlling for market-to-book ratios during 1980-1985. If this relation does not hold, then we infer that market-to-book ratios affect governance indices and not vice versa.

Before turning to the results of these tests, we first examine the serial correlation in market-to-book ratios.

B.1. Serial correlation in market-to-book ratios

Table II presents a matrix containing correlation coefficients for pairs of market-to-book ratios for each year from 1980 through 2003. The matrix reveals significant serial correlation in market-to-book ratios over the period. The correlation coefficients range from 0.22 to 0.85. All correlation coefficients in the matrix are positive and significant at the 0.01 level.

[Table II here]

Perhaps most relevant for this analysis, market-to-book ratios during the early 1980s are highly correlated with market-to-book ratios during 1990-2003. For example, the 1980 market-to-book ratio has correlation coefficients of 0.32 and 0.24 with the 1990 and 2003 market-to-book ratios, respectively. Both are significant at the 0.01 level. The 1985 market-to-book ratio has correlation coefficients of 0.51 and 0.41 with the 1990 and 2003 market-to-book ratios, respectively, and both also are significant at the 0.01 level. Hence, market-to-book ratios during the sample periods used by GIM and BCF are highly correlated with market-to- book ratios during 1980-1985, a period preceding the adoption of governance provisions comprising the GIM and BCF indices[3].

The relevance of the serial correlation in market-to-book ratios is revealed in Figure 1, which plots the mean market-to-book ratios during 1980-2003 for two groups of firms: those

with the highest and lowest values of the governance indices in 1990. Panel A of Figure 1 plots the data for the quartile of firms with the highest and lowest values of the GIM index in 1990. The figure shows that the mean market-to-book ratio in 1990 for the quartile of firms with the lowest values of the GIM index in 1990 is substantially higher than the corresponding mean market-to-book ratio in 1990 for the quartile of firms with the highest values of the GIM index in 1990.[4] This result is consistent with the regression results showing a significant negative relation between market-to-book ratios and the contemporaneous value of the GIM index.

The figure also shows that the mean market-to-book ratio of the high-GIM quartile is consistently less than the mean market-to-book ratio of the low GIM quartile during the early 1980s, the period preceding the adoption of governance provisions comprising the GIM index. In fact, the difference in the mean market-to-book ratios of the two quartiles is actually greater during 1980-1985 than it is in 1990 and thereafter. The evidence presented in panel A of Figure 1 is consistent with the view that firms with low market-to-book ratios were more likely to adopt governance provisions that comprise the GIM index than firms with high market-to-book ratios. The evidence is not consistent with the view that the adoption of governance provisions comprising the GIM index caused market-to-book ratios to be lower.

Panel B of Figure 1 presents the corresponding graph for quartiles of firms with the highest and lowest values of the BCF index in 1990. The graph shows a pattern similar to the one presented in Panel A. The quartile of firms with the highest values of the BCF index in 1990 has substantially lower market-to-book ratios in 1990 than the quartile of firms with the lowest values of the BCF index in 1990. However, firms in the high BCF index quartile had substantially lower market-to-book ratios than firms in the low BCF index quartile during 1980-

1985. This evidence also is consistent with the hypothesis that market-to-book ratios affect the governance indices and not vice versa.

B.2. Replicating GIM and BCF with 1980-1985 market-to-book ratios as the dependent variable

To test whether a significant relation exists between market-to-book ratios during 1980-1985 and the governance indices during 1990-2003, we replicate the GIM and BCF regressions with one change. Instead of regressing market-to-book ratios during 1990-2003 on, among other variables, the contemporaneous values of the governance indices, we regress market-to-book ratios during 1980-1985 on the values of the governance indices during 1990-2003. The results of this test are contained in Table III.

[Table III here]

Panel A of Table III presents the results for the GIM index. The panel reports the estimated coefficients on the GIM index and the corresponding t-statistics for various regression models in which market-to-book ratios in each year 1980-1985 serves as the dependent variable. The results show that the GIM index in 1990 is negatively related to market-to-book ratios in each year during 1980-1985. Five of the six estimated coefficients on the 1990 GIM index are significant at the 0.01 level and the remaining one, corresponding to the 1980 market-to-book ratio is significant at the 0.10 level. Furthermore, the estimated coefficients on the GIM index are slightly larger in magnitude than the corresponding coefficient on the GIM index when the 1990 market-to-book ratio is the dependent variable. As seen in Table I, the estimated coefficient on the 1990 GIM index is -0.013 when the dependent variable is the 1990 market-to-book ratio. The coefficients on the 1990 GIM index range from -0.025 to -0.013 when the 1980-1985 market-to-book ratios are the dependent variables.

The panel shows a significant relation also exists between later values of the GIM index and market-to-book ratios during 1980-1985. For example, even the 2003 value of the GIM index is negatively related to market-to-book ratios during 1983-1985 and this relation is significant at the 0.01 level. The evidence supports the view that valuation ratios affect governance indices, not vice versa.

Panel B of Table III presents the corresponding results for the BCF index. The panel shows that market-to-book ratios during 1980-1982 are negatively related to the BCF index in 1990 and significant at the 0.05 level or better. The estimated coefficients on the 1991 BCF index show that it is negatively and significantly (at the 0.10 level or better) related to market-to-book ratios in each year during 1980-1985. Furthermore, the market-to-book ratio in each year during 1982-1985 is negatively related to the value of the BCF index in every year from 1991-2003, and in almost every year the relation is significant at the 0.01 level. For example, the 2003 value of the BCF index is negatively related to market-to-book ratios in each year during 1983-1985, and this relation is significant at the 0.01 level.

B.3. Replicating GIM and BCF with 1980-1985 market-to-book ratios included as independent variables

We also test whether the significant negative relation between market-to-book ratios and the contemporaneous value of the GIM and BCF indices during 1990-2003 holds after controlling for market-to-book ratios during the early 1980s. For this test, we replicate the results reported in Table I with one change – we include the average market-to-book ratio during 1980-1985 as an independent variable. The results from this test are contained in Table IV. Panels A and B contain the results for the GIM and BCF Indexes, respectively.

[Table IV here]

Panel A of Table IV shows that the estimated coefficient on the average market-to-book ratio during 1980-1985 is positive and significant at the 0.01 level in every year during 1990-2003. This result complements the earlier results showing strong serial correlation in market-to-book ratios. After controlling for this variable, the significant relation between the GIM index and contemporaneous market-to-book ratio vanishes. In 11 of the 14 years, no significant relation exists between the GIM index and the contemporaneous market-to-book ratio. In only two years is the relation between the two variables significant at a level as high as 0.05. The results provide additional support for the view that market-to-book ratios affect the GIM index, not vice versa.

Panel B provides the corresponding results for the BCF index. The results show that the average market-to-book ratio during 1980-1985 is negatively related to the market-to-book ratio in each year during 1990-2003 and this relation is significant at the 0.01 level in each year. After controlling for the average market-to-book ratio during 1980-1985, the estimated coefficient on the BCF index is generally not significant. In 12 of the 14 years, the estimated coefficient on the BCF index is not significant. These results also support the view that market- to-book ratios affect the BCF index, not vice versa.

III. Concluding comments

This paper shows that the correlation between market-to-book ratios and the contemporaneous values of governance indices, as documented by Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2004), reflects causation running from market-to-book ratios to the governance indices, not vice versa. Specifically, we find that market-to-book ratios during the early 1980s, a period preceding the adoption of the provisions comprising the

governance indices, are significantly related to the subsequent value of these indices. In addition, we find that the significant relation between market-to-book ratios and the contemporaneous values of the GIM and BCF governance indices during the 1990s vanishes after controlling for market-to-book ratios during 1980-1985.

The results are consistent with two explanations. First, firms with low market-to-book ratios may be poorly run and, hence, more likely targets of control contests. If so, these firms are more likely than other firms to adopt takeover defenses that affect the value of their governance indices. Second, firms with low market-to-book ratios are likely to have fewer growth opportunities as compared with other firms. Insofar that low growth firms are more likely to be targets of takeovers than other firms, these firms are more likely to adopt takeover defenses as well. Future research will attempt to distinguish between these two explanations.

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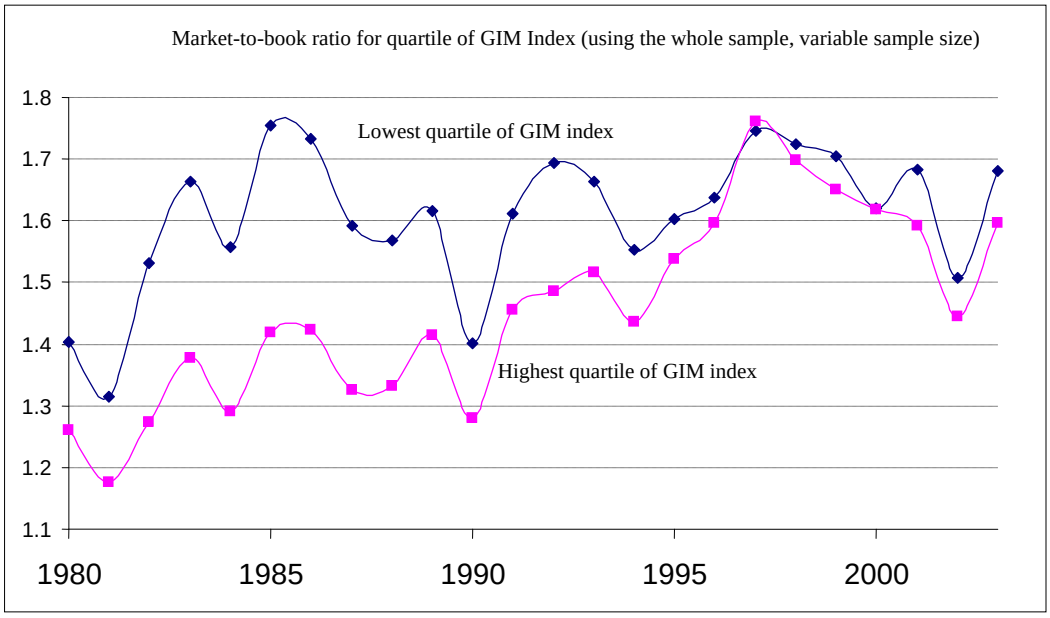
Figure 1. Market-to-book ratio and GIM Index

Panel A

This figure shows the mean market-to-book ratio from 1980 to 2003 for two groups of firms. The top and bottom lines are the mean market-to-book ratios for the sub-samples of firms in the lowest and highest quartiles ranked by the GIM Index in 1990, respectively.



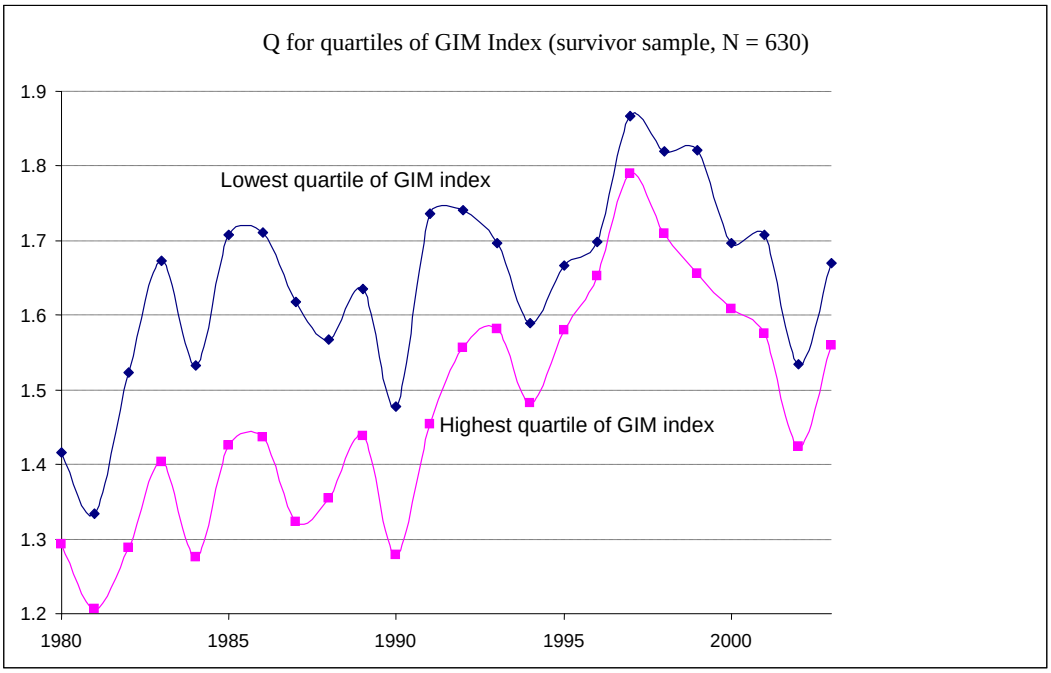
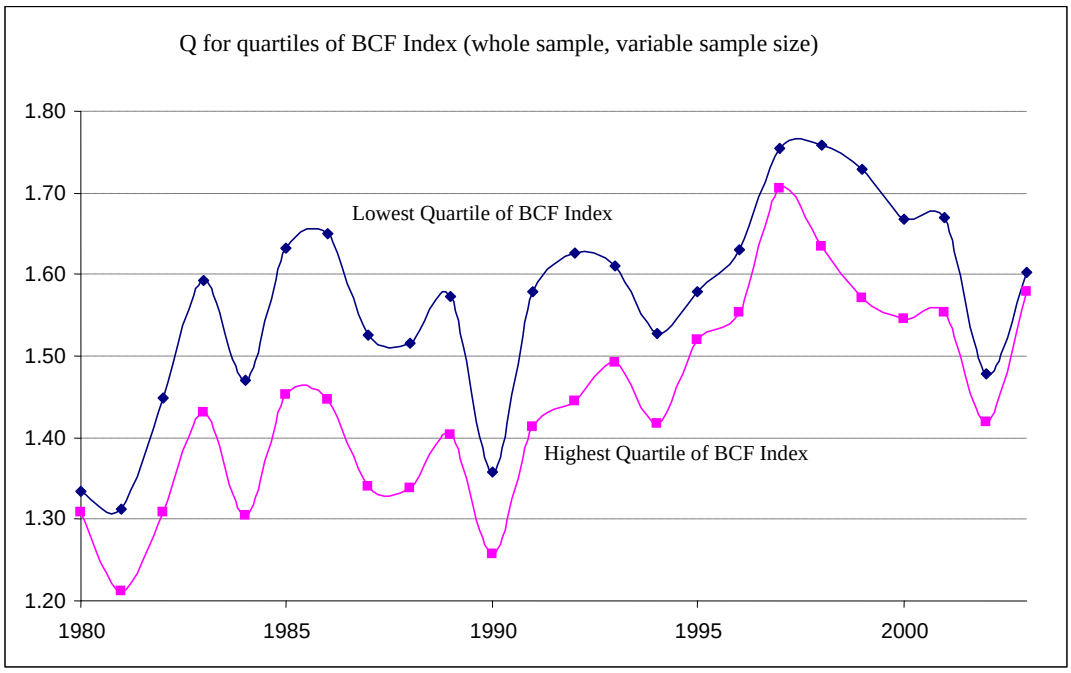


Figure 1. (Continued)

Panel B

This figure shows mean market-to-book ratio from 1980 to 2003 for two groups of firms. The top line is market-to-book ratio of the sub-sample of firms from lowest quartile ranked by the BCF index and the bottom line is the market-to-book ratio of the sub-sample of firms from the highest quartile ranked by the BCF index.



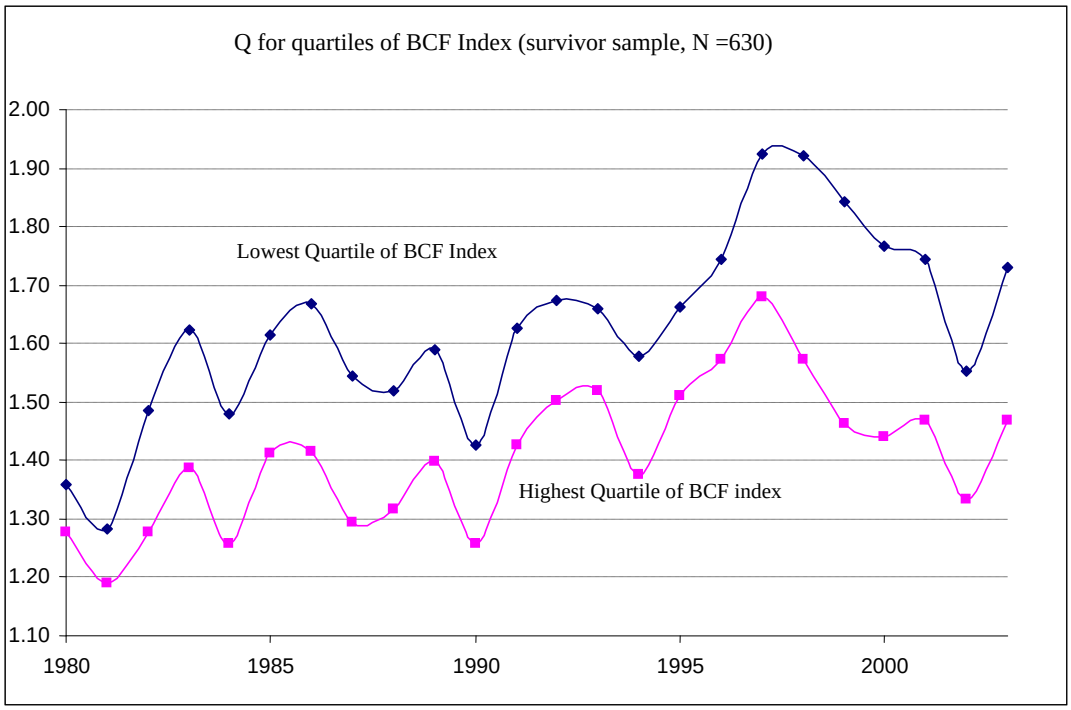


Table I
Replication of Annual OLS Regressions

Panel A: Replication of the GIM Regression

Panel A provides results from replication of the GIM annual regressions of contemporaneous market-to-book ratio on the GIM index. The independent variables include the value of the current year GIM index, a dummy variable equal to one if the firm is incorporated in Delaware and zero otherwise (DELAWARE), log of assets (ASSET), log of firm age (AGE), and a dummy variable equal to one if the firm is included in the S&P 500 index and zero otherwise (SP500).
White heteroscedasticity consistent t-statistics are in parentheses below the coefficient estimates.

Year	Intercept	GIM index	DELA-WARE	ASSET	AGE	SP500	N	Adj. R-Squared
1990	0.934	-0.013***	0.034	-0.089***	-0.039*	0.421***	1260	10.04%
	(7.48)	(-2.30)	(1.00)	(-2.53)	(-1.72)	(8.27)		
1991	1.141	-0.020***	-0.025	-0.093***	-0.088***	0.501***	1227	9.21%
	(7.22)	(-2.75)	(-0.59)	(-6.75)	(-2.61)	(8.53)		
1992	1.095	-0.024***	-0.028	-0.080***	-0.095***	0.512***	1202	10.60%
	(7.17)	(-3.46)	(-0.71)	(-6.02)	(-2.87)	(9.34)		
1993	1.003	-0.015***	-0.047	-0.075***	-0.114***	0.497***	1323	9.32%
	(6.88)	(-2.17)	(-1.21)	(-5.87)	(-3.56)	(9.34)		
1994	0.977	-0.012**	-0.019	-0.075***	-0.097***	0.494***	1290	10.91%
	(7.24)	(-1.97)	(-0.55)	(-6.45)	(-3.11)	(9.79)		
1995	0.921	-0.016***	-0.038	-0.067***	-0.088***	0.474***	1348	7.81%
	(6.43)	(-2.46)	(-0.98)	(-5.21)	(-2.89)	(9.29)		
1996	0.857	-0.013*	-0.047	-0.062***	-0.084***	0.503***	1297	7.94%
	(5.36)	(-1.87)	(-1.15)	(-4.73)	(-2.51)	(9.20)		
1997	0.861	-0.004	-0.032	-0.085***	-0.044	0.646***	1218	10.89%
	(5.19)	(-0.54)	(-0.74)	(-6.00)	(-1.19)	(11.24)		
1998	1.680	-0.027***	-0.015	-0.132***	-0.104***	0.930***	1645	15.59%
	(11.58)	(-3.54)	(-0.34)	(-9.42)	(-3.67)	(15.54)		
1999	1.038	-0.033***	-0.043	-0.090***	-0.044	0.826***	1495	9.74%
	(5.86)	(-3.57)	(-0.80)	(-5.22)	(-1.19)	(11.95)		
2000	1.687	-0.035***	0.056	-0.137***	-0.087***	0.918***	1494	13.65%
	(10.20)	(-4.09)	(1.17)	(-8.54)	(-2.77)	(14.13)		
2001	1.718	-0.031***	-0.010	-0.137***	-0.124***	0.804***	1384	12.01%
	(10.09)	(-3.40)	(-0.21)	(-8.16)	(-3.58)	(12.69)		
2002	1.142	-0.016***	-0.075**	-0.108***	-0.030	0.644***	1696	8.78%
	(9.00)	(-2.45)	(-1.96)	(-8.69)	(-1.23)	(11.74)		
2003	1.291	-0.032***	-0.073*	-0.104***	-0.081***	0.594***	1594	6.67%
	(8.40)	(-4.00)	(-1.62)	(-7.08)	(-2.58)	(9.86)		
Mean	1.167	-0.021***	-0.026***	-0.095***	-0.080***	0.626***		
T-stat	(14.13)	(-8.05)	(-2.71)	(-14.22)	(-10.20)	(13.46)		

*** significant at 1%; ** significant at 5%; * significant at 10%.

Table I (Continued)

Panel B(1): Replication of the BCF Median Regressions

Panel B reports the annual median regression results of log (industry-adjusted market-to-book ratio) on the BCF Index. Other independent variables are the same as those included in BCF, including other governance provisions (OTHER), log of assets (ASSET), log of firm age (AGE), a dummy variable equal to one if the firm is incorporated in Delaware and zero otherwise (DELAWARE), return on assets (ROA), the ratio of capital expenditures to assets (CAPEX), leverage (LEV), and the ratio of R&D expenditures to sales (RD).

Year	Intercept	BCF Index	OTHER	ASSET	AGE	DELA-WARE	ROA	CAPEX	LEV	RD	N	Pseudo R-squared
1990	0.015	-0.005	0.004	0.008	-0.050***	0.024	2.994***	0.270	-0.038*	-0.012	485	17.23%
	(0.20)	(-0.40)	(0.55)	(0.70)	(-2.33)	(0.82)	(12.83)	(1.31)	(-1.66)	(-0.46)		
1991	0.069	-0.016	0.000	-0.003	-0.022	-0.018	2.647***	0.228	-0.030	0.304	476	12.89%
	(0.68)	(-1.14)	(-0.01)	(-0.22)	(-0.76)	(-0.50)	(9.27)	(0.65)	(-0.96)	(1.63)		
1992	-0.006	-0.019	0.008	-0.008	-0.015	-0.048	3.149***	-0.078	-0.007	0.554***	458	14.72%
	(-0.04)	(-1.03)	(0.62)	(-0.46)	(-0.39)	(-1.07)	(8.08)	(-0.17)	(-0.18)	(2.44)		
1993	-0.058	-0.025**	0.013	0.018	-0.077***	-0.070***	2.971***	0.355**	-0.006	-0.023***	532	18.35%
	(-0.69)	(-2.05)	(1.64)	(1.58)	(-3.36)	(-2.37)	(12.92)	(2.05)	(-0.23)	(-2.08)		
1994	0.030	-0.032***	0.006	-0.006	-0.041	-0.052	3.527***	0.724***	-0.004	-0.022	522	19.17%
	(0.30)	(-2.28)	(0.70)	(-0.42)	(-1.49)	(-1.49)	(11.37)	(2.12)	(-0.15)	(-1.31)		
1995	-0.036	-0.026***	0.006	0.009	-0.043***	-0.020	2.737***	0.440***	-0.044**	0.023***	563	14.67%
	(-0.44)	(-2.32)	(0.79)	(0.86)	(-2.26)	(-0.73)	(12.33)	(2.11)	(-2.06)	(2.56)		
1996	-0.057	-0.024*	0.001	0.029***	-0.070***	-0.046	3.212***	0.021	-0.039	0.224***	534	18.12%
	(-0.56)	(-1.80)	(0.16)	(2.25)	(-2.80)	(-1.39)	(11.67)	(0.10)	(-1.37)	(5.26)		
1997	-0.089	-0.011	0.005	0.032*	-0.077**	-0.040	3.829***	0.035	-0.047	0.077***	505	19.86%
	(-0.60)	(-0.58)	(0.40)	(1.77)	(-2.00)	(-0.84)	(9.93)	(0.12)	(-1.16)	(3.50)		
1998	-0.101	-0.067***	0.017*	0.044***	-0.055***	0.058*	3.504***	-0.200	-0.062***	0.449***	710	20.74%
	(-1.11)	(-4.85)	(1.78)	(3.46)	(-2.52)	(1.70)	(14.91)	(-1.56)	(-2.55)	(7.48)		
1999	-0.113	-0.059***	-0.004	0.040***	-0.038	0.001	3.365***	-0.079***	-0.052	0.081***	643	12.26%
	(-0.92)	(-3.06)	(-0.29)	(2.35)	(-0.88)	(0.03)	(10.72)	(-4.40)	(-1.51)	(4.54)		
2000	0.098	-0.037	-0.009	0.037*	-0.063	0.015	3.031***	-0.063*	-0.057	0.085***	642	13.17%
	(0.59)	(-1.54)	(-0.51)	(1.72)	(-1.57)	(0.25)	(7.77)	(-1.90)	(-1.41)	(2.96)		
2001	0.234	-0.034***	-0.003	0.039***	-0.094***	0.015	2.469***	-0.108*	-0.116***	0.040***	603	13.19%
	(2.08)	(-2.17)	(-0.28)	(2.71)	(-3.24)	(0.37)	(9.97)	(-1.95)	(-4.31)	(3.92)		
2002	0.251	-0.048***	0.000	0.014	-0.059***	0.010	2.994***	0.002	-0.026	0.001***	832	19.58%
	(2.26)	(-3.03)	(-0.01)	(0.99)	(-2.22)	(0.24)	(13.14)	(0.55)	(-0.10)	(3.39)		
2003	0.262	-0.035***	-0.002	-0.016	-0.045*	0.041	2.440***	-0.045**	-0.009	0.004***	781	10.17%
	(2.91)	(-2.66)	(-0.26)	(-1.31)	(-1.93)	(1.25)	(11.75)	(-2.03)	(-0.40)	(4.23)		
Mean	0.036	-0.031***	0.003	0.017***	-0.054***	-0.009	3.062***	0.107	-0.038***	0.128***		
T-stat	(1.018)	(-6.67)	(1.63)	(3.134)	(-9.16)	(-0.90)	(28.13)	(1.54)	(-4.82)	(2.57)		

*** significant at 1%; ** significant at 5%; * significant at 10%.

Table I (Continued)

Panel B(2): Replication of the BCF Regressions

This table reports annual OLS regression of log (industry-adjusted market-to-book ratio) on log (1+BCFindex) (BCF Index). Other independent variables are the same as the above table and BCF, including other governance provisions (OTHER), log of assets (ASSET), log of firm age (AGE), a dummy variable equal to one if the firm is incorporated in Delaware and zero otherwise (DELAWARE), return on assets (ROA), the ratio of capital expenditures to assets (CAPEX), leverage (LEV), the ratio of R&D expenditure to sales (RD). These regressions are not exactly the same as BCF, which uses a median regression model. This table is based on an OLS regression and uses the natural log of market-to-book ratios and the BCF Index. White heteroscedasticity consistent t-statistics are in parentheses below the coefficient estimates.

Year	Intercept	BCF Index	OTHER	ASSET	AGE	DELA-WARE	ROA	CAPEX	LEV	RD	N	Adj. R-squared
1990	0.165	-0.030	-0.002	-0.002	-0.057***	0.017	3.385***	0.335	-0.013	-0.001	484	34.04%
	(2.13)	(-0.94)	(-0.25)	(-0.18)	(-2.64)	(0.61)	(11.14)	(1.16)	(-0.53)	(-0.02)		
1991	0.139	-0.053	0.004	-0.010	-0.034	-0.032	2.870***	0.115	-0.038	0.409***	475	24.19%
	(1.45)	(-1.52)	(0.47)	(-0.73)	(-1.17)	(-0.92)	(10.40)	(0.30)	(-1.43)	(2.35)		
1992	0.065	-0.082***	0.005	0.001	-0.048	-0.032	3.253***	0.321	-0.004	0.300	457	27.28%
	(0.69)	(-2.34)	(0.61)	(0.08)	(-1.63)	(-1.00)	(9.79)	(0.78)	(-0.14)	(1.56)		
1993	0.127	-0.103***	0.011	0.005	-0.085***	-0.036	3.106***	0.299	-0.005	-0.021	531	30.60%
	(1.27)	(-2.97)	(1.46)	(0.41)	(-3.32)	(-1.18)	(11.05)	(1.28)	(-0.16)	(-1.40)		
1994	0.161	-0.092***	0.009	-0.001	-0.081***	-0.047*	3.310***	0.511*	0.016	0.005	521	31.37%
	(1.80)	(-3.01)	(1.11)	(-0.09)	(-3.21)	(-1.72)	(9.27)	(1.87)	(0.57)	(0.20)		
1995	0.087	-0.063**	0.000	0.006	-0.051***	-0.001	2.500***	0.224	-0.042*	0.019***	562	21.17%
	(0.87)	(-2.05)	(0.00)	(0.50)	(-2.11)	(-0.03)	(8.16)	(1.01)	(-1.65)	(2.41)		
1996	0.018	-0.099***	0.001	0.020	-0.055***	-0.041	3.130***	0.208	-0.027	0.189***	533	28.81%
	(0.18)	(-2.92)	(0.12)	(1.60)	(-2.16)	(-1.37)	(9.70)	(0.98)	(-0.90)	(4.11)		
1997	-0.082	-0.047	0.007	0.035***	-0.059***	-0.047	2.980***	-0.183	-0.031	0.106***	504	27.38%
	(0.79)	(-1.29)	(0.78)	(2.67)	(-2.13)	(-1.51)	(8.44)	(-0.99)	(-1.03)	(4.07)		
1998	0.093	-0.188***	0.016*	0.040***	-0.065***	0.029	3.055***	-0.165	-0.070***	0.304***	709	28.44%
	(-1.00)	(-5.31)	(1.89)	(3.29)	(-2.88)	(0.93)	(11.59)	(-2.16)	(-2.88)	(2.69)		
1999	-0.027	-0.137***	0.007	0.029*	-0.037	-0.008	2.607***	-0.089***	-0.069**	0.090***	642	18.21%
	(-0.23)	(-3.21)	(0.64)	(1.80)	(-1.32)	(-0.21)	(7.82)	(-3.85)	(-2.07)	(3.95)		
2000	0.219	-0.135***	-0.005	0.026*	-0.052*	0.049	2.622***	-0.008	-0.073***	0.042	641	19.06%
	(1.87)	(-3.12)	(-0.44)	(1.65)	(-1.86)	(1.32)	(9.18)	(-0.22)	(-2.53)	(1.41)		
2001	0.379	-0.128***	0.004	0.016	-0.085***	0.028	2.130***	-0.046	-0.112***	0.034***	602	18.41%
	(3.21)	(-3.11)	(0.35)	(0.98)	(-2.85)	(0.77)	(8.40)	(-0.62)	(-4.42)	(2.42)		
2002	0.336	-0.122***	0.004	-0.003	-0.032*	-0.004	2.764***	0.000	-0.042***	0.001*	831	31.79%
	(4.14)	(-4.17)	(0.51)	(-0.28)	(-1.75)	(-0.14)	(16.73)	(0.00)	(-2.35)	(1.72)		
2003	0.422	-0.111***	-0.006	-0.015	-0.055***	0.009	2.158***	-0.038*	-0.039*	0.003***	780	16.86%
	(4.51)	(-3.34)	(-0.65)	(-1.19)	(-2.41)	(0.30)	(9.78)	(-1.72)	(-1.63)	(2.64)		
Mean	0.150	-0.099***	0.004***	0.010***	-0.057***	-0.008	2.848***	0.106*	-0.039***	0.106***		
T-stat	(3.80)	(-8.78)	(2.47)	(2.25)	(-12.34)	(-1.00)	(26.50)	(1.87)	(-4.35)	(2.84)		

*** significant at 1%; ** significant at 5%; * significant at 10%.

Table II
Serial Correlation of Market-to-Book Ratios

This table reports the serial correlation of market-to-book ratios (MTB) of the IRRC firms during 1980-2003. All correlation coefficients are significant at the 0.01 level.

	MTB 1980	MTB 1981	MTB 1982	MTB 1983	MTB 1984	MTB 1985	MTB 1990	MTB 1991	MTB 1992	MTB 1993	MTB 1994	MTB 1995	MTB 1996	MTB 1997	MTB 1998	MTB 1999	MTB 2000	MTB 2001	MTB 2002	MTB 2003
MTB80	1	0.84	0.70	0.63	0.58	0.51	0.32	0.33	0.31	0.28	0.29	0.26	0.26	0.26	0.25	0.24	0.25	0.27	0.22	0.24
MTB81	0.84	1	0.84	0.73	0.64	0.57	0.35	0.39	0.37	0.32	0.32	0.29	0.29	0.30	0.28	0.26	0.27	0.33	0.27	0.29
MTB82	0.70	0.84	1	0.85	0.73	0.66	0.37	0.43	0.41	0.38	0.38	0.34	0.32	0.33	0.33	0.34	0.32	0.38	0.35	0.39
MTB83	0.63	0.73	0.85	1	0.83	0.73	0.35	0.44	0.44	0.41	0.41	0.37	0.33	0.32	0.32	0.33	0.29	0.36	0.31	0.39
MTB84	0.58	0.64	0.73	0.83	1	0.84	0.41	0.47	0.45	0.41	0.40	0.36	0.32	0.32	0.34	0.34	0.32	0.36	0.33	0.39
MTB85	0.51	0.57	0.66	0.73	0.84	1	0.51	0.55	0.52	0.46	0.46	0.42	0.39	0.40	0.41	0.38	0.37	0.40	0.39	0.41
MTB90	0.32	0.35	0.37	0.35	0.41	0.51	1	0.81	0.69	0.55	0.54	0.48	0.43	0.37	0.37	0.34	0.36	0.39	0.37	0.33
MTB91	0.33	0.39	0.43	0.44	0.47	0.55	0.81	1	0.85	0.68	0.62	0.55	0.46	0.40	0.38	0.36	0.37	0.44	0.38	0.38
MTB92	0.31	0.37	0.41	0.44	0.45	0.52	0.69	0.85	1	0.80	0.70	0.59	0.50	0.42	0.43	0.39	0.37	0.43	0.39	0.37
MTB93	0.28	0.32	0.38	0.41	0.41	0.46	0.55	0.68	0.80	1	0.81	0.67	0.55	0.47	0.44	0.43	0.39	0.43	0.39	0.38
MTB94	0.29	0.32	0.38	0.41	0.40	0.46	0.54	0.62	0.70	0.81	1	0.78	0.64	0.54	0.49	0.43	0.39	0.45	0.39	0.40
MTB95	0.26	0.29	0.34	0.37	0.36	0.42	0.48	0.55	0.59	0.67	0.78	1	0.81	0.65	0.55	0.48	0.44	0.46	0.38	0.40
MTB96	0.26	0.29	0.32	0.33	0.32	0.39	0.43	0.46	0.50	0.55	0.64	0.81	1	0.79	0.63	0.51	0.46	0.47	0.38	0.37
MTB97	0.26	0.30	0.33	0.32	0.32	0.40	0.37	0.40	0.42	0.47	0.54	0.65	0.79	1	0.76	0.56	0.54	0.52	0.44	0.40
MTB98	0.25	0.28	0.33	0.32	0.34	0.41	0.37	0.38	0.43	0.44	0.49	0.55	0.63	0.76	1	0.67	0.61	0.62	0.50	0.44
MTB99	0.24	0.26	0.34	0.33	0.34	0.38	0.34	0.36	0.39	0.43	0.43	0.48	0.51	0.56	0.67	1	0.66	0.64	0.47	0.54
MTB00	0.25	0.27	0.32	0.29	0.32	0.37	0.36	0.37	0.37	0.39	0.39	0.44	0.46	0.54	0.61	0.66	1	0.78	0.59	0.52
MTB01	0.27	0.33	0.38	0.36	0.36	0.40	0.39	0.44	0.43	0.43	0.45	0.46	0.47	0.52	0.62	0.64	0.78	1	0.75	0.66
MTB02	0.22	0.27	0.35	0.31	0.33	0.39	0.37	0.38	0.39	0.39	0.39	0.38	0.38	0.44	0.50	0.47	0.59	0.75	1	0.76
MTB03	0.24	0.29	0.39	0.39	0.39	0.41	0.33	0.38	0.37	0.38	0.40	0.40	0.37	0.40	0.44	0.54	0.52	0.66	0.76	1

Table III
Regression of Market-to-Book Ratios During 1980-1985 and the Governance Indices During 1990-2003

Panel A

This table reports results from a regression model in which market-to-book ratios during 1980-1985 (MTB) are regressed on, among other variables, the GIM Index during 1990-2003. "Avg MTB" is the average market-to-book ratio during 1980-1985. Only the estimated coefficients of GIM Index are reported in this table. The estimated coefficients on other variables, which are same as those included in the regressions reported in Table I, are not reported for the sake of brevity. White heteroscedasticity consistent t-statistics are in parentheses below the coefficient estimates. Adj. R-squared for the regressions with dependent variable "Avg MTB" are reported.

Year	MTB80	MTB81	MTB82	MTB83	MTB84	MTB85	Avg MTB	Adj. R-Squared
1990	-0.013*	-0.014***	-0.025***	-0.022***	-0.016***	-0.020***	-0.017***	13.06%
	(-1.86)	(-2.28)	(-3.11)	(-2.80)	(-2.38)	(-2.76)	(-2.69)	
1991	-0.014**	-0.014***	-0.025***	-0.022***	-0.017***	-0.022***	-0.018***	12.97%
	(-2.02)	(-2.27)	(-3.08)	(-2.76)	(-2.48)	(-2.96)	(-2.81)	
1992	-0.014**	-0.014***	-0.025***	-0.022***	-0.019***	-0.024***	-0.018***	12.85%
	(-2.00)	(-2.25)	(-3.04)	(-2.72)	(-2.75)	(-3.21)	(-2.77)	
1993	-0.005	-0.006	-0.019***	-0.016*	-0.013*	-0.017***	-0.009	9.68%
	(-0.66)	(-0.90)	(-2.23)	(-1.87)	(-1.82)	(-2.22)	(-1.32)	
1994	-0.008	-0.009	-0.020***	-0.018***	-0.014**	-0.019***	-0.011*	8.83%
	(-1.08)	(-1.40)	(-2.41)	(-2.14)	(-2.03)	(-2.47)	(-1.67)	
1995	-0.007	-0.010	-0.020***	-0.017**	-0.013*	-0.017***	-0.012*	7.30%
	(-0.92)	(-1.52)	(-2.36)	(-1.96)	(-1.86)	(-2.17)	(-1.79)	
1996	-0.005	-0.009	-0.020***	-0.018**	-0.014**	-0.018***	-0.011*	7.46%
	(-0.65)	(-1.36)	(-2.32)	(-2.04)	(-1.99)	(-2.29)	(-1.63)	
1997	-0.005	-0.007	-0.018**	-0.017*	-0.013*	-0.018***	-0.010	7.77%
	(-0.64)	(-1.03)	(-2.03)	(-1.84)	(-1.79)	(-2.22)	(-1.44)	
1998	-0.008	-0.007	-0.014	-0.018*	-0.011	-0.018**	-0.008	8.73%
	(-0.99)	(-0.96)	(-1.56)	(-1.85)	(-1.41)	(-2.04)	(-1.09)	
1999	-0.009	-0.008	-0.018**	-0.021**	-0.011	-0.016*	-0.010	9.12%
	(-1.07)	(-1.06)	(-1.97)	(-2.08)	(-1.34)	(-1.77)	(-1.32)	
2000	-0.008	-0.005	-0.015	-0.018*	-0.010	-0.014	-0.010	10.03%
	(-0.90)	(-0.66)	(-1.60)	(-1.76)	(-1.22)	(-1.59)	(-1.26)	
2001	-0.008	-0.003	-0.015	-0.020***	-0.014*	-0.018**	-0.011	10.56%
	(-0.87)	(-0.41)	(-1.55)	(-2.13)	(-1.80)	(-1.98)	(-1.57)	
2002	-0.010	-0.004	-0.014	-0.025***	-0.016*	-0.017*	-0.012	9.63%
	(-1.10)	(-0.46)	(-1.43)	(-2.35)	(-1.87)	(-1.79)	(-1.10)	
2003	-0.013	-0.005	-0.016	-0.029***	-0.021***	-0.021***	-0.014*	9.94%
	(-1.37)	(-0.57)	(-1.57)	(-2.61)	(-2.37)	(-2.20)	(-1.62)	
Mean	-0.009***	-0.008***	-0.019***	-0.020	-0.014***	-0.019***	-0.012***	
T-stat	(-10.34)	(-8.31)	(-17.28)	(-21.69)	(-17.40)	(-26.14)	(-14.03)	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Table III (Continued)

Panel B

This table reports results from a regression model in which market-to-book ratios during 1980-1985 (MTB) are regressed on, among other variables, the BCF Index during 1990-2003. "Avg MTB" is the average market-to-book ratio during 1980 to 1985. Only the estimated coefficients of BCF Index are reported in this table. The estimated coefficients on other variables, which are the same as those included in the regressions reported in Table 1, are not reported for the sake of brevity. White heteroscedasticity consistent t-statistics are in parentheses below the coefficient estimates. R-squared for the regressions with dependent variable "Avg MTB" are reported.

Year	MTB80	MTB81	MTB82	MTB83	MTB84	MTB85	Avg MTB	Adj. R-Squared
1990	-0.088*	-0.082**	-0.102***	-0.056	-0.053	-0.043	-0.084***	29.24%
	(-1.92)	(-2.05)	(-2.22)	(-1.31)	(-1.33)	(-1.20)	(-2.26)	
1991	-0.072*	-0.067*	-0.091**	-0.071*	-0.085***	-0.082***	-0.084***	28.62%
	(-1.70)	(-1.79)	(-2.04)	(-1.70)	(-2.22)	(-2.39)	(-2.30)	
1992	-0.093**	-0.077**	-0.086*	-0.067	-0.077**	-0.064*	-0.086***	28.14%
	(-2.07)	(-2.02)	(-1.92)	(-0.79)	(-1.98)	(-1.83)	(-2.34)	
1993	-0.080*	-0.084***	-0.132***	-0.119***	-0.118***	-0.084***	-0.110***	28.80%
	(-1.90)	(-2.42)	(-3.13)	(-2.79)	(-3.05)	(-2.36)	(-3.18)	
1994	-0.063	-0.079***	-0.115***	-0.120***	-0.119***	-0.066*	-0.096***	25.30%
	(-1.53)	(-2.20)	(-2.66)	(-2.77)	(-3.07)	(-1.80)	(-2.67)	
1995	-0.073*	-0.104***	-0.148***	-0.141***	-0.129***	-0.098***	-0.111***	17.84%
	(-1.77)	(-2.70)	(-3.32)	(-3.25)	(-3.45)	(-2.61)	(-3.09)	
1996	-0.085**	-0.094***	-0.144***	-0.138***	-0.134**	-0.103***	-0.112***	17.44%
	(-2.04)	(-2.43)	(-3.14)	(-3.07)	(-2.07)	(-2.64)	(-3.06)	
1997	-0.036	-0.062	-0.114***	-0.126***	-0.118***	-0.087	-0.085***	15.63%
	(-0.85)	(-1.53)	(-2.33)	(-2.71)	(-2.90)	(-1.35)	(-2.20)	
1998	-0.055	-0.069	-0.149***	-0.176***	-0.160***	-0.150***	-0.109***	8.79%
	(-1.02)	(-1.39)	(-2.78)	(-3.77)	(-3.99)	(-3.60)	(-2.56)	
1999	-0.065	-0.072	-0.134***	-0.157***	-0.145***	-0.124***	-0.105***	9.26%
	(-1.17)	(-1.40)	(-2.46)	(-3.29)	(-3.51)	(-2.85)	(-2.38)	
2000	-0.083	-0.110**	-0.154***	-0.185***	-0.149***	-0.124***	-0.148***	8.00%
	(-1.33)	(-2.04)	(-2.70)	(-3.75)	(-3.17)	(-2.46)	(-2.98)	
2001	-0.118*	-0.123***	-0.170***	-0.219***	-0.178***	-0.147***	-0.170***	9.63%
	(-1.86)	(-2.31)	(-2.92)	(-4.46)	(-3.69)	(-2.79)	(-3.41)	
2002	-0.095	-0.125***	-0.149***	-0.197***	-0.150***	-0.142***	-0.132***	11.56%
	(-1.53)	(-2.30)	(-2.45)	(-3.45)	(-2.80)	(-2.39)	(-2.36)	
2003	-0.112**	-0.138***	-0.160***	-0.186***	-0.152***	-0.161***	-0.127***	14.79%
	(-2.02)	(-2.56)	(-2.58)	(-3.17)	(-2.80)	(-2.61)	(-2.31)	
Mean	-0.080***	-0.082***	-0.132***	-0.140***	-0.126***	-0.105***	-0.111***	
T-stat	(-13.65)	(-14.16)	(-18.75)	(-10.34)	(-13.58)	(-10.79)	(-16.27)	

*** significant at 1%; ** significant at 5%; * significant at 10%.

Table IV
Annual OLS Regression of Market-to-Book Ratio on Contemporaneous Value of the Governance Indices and the Average Market-to-Book Ratio During 1980-1985

Panel A

This table reports results from a model in which market-to-book ratios are regressed on, among other variables, the contemporaneous value of the GIM Index and the average market-to-book ratio during 1980-1985 (Avg MTB). Other independent variables are the same as those included in panel A of table 1. White heteroscedasticity consistent t-statistics are in parentheses below the coefficient estimates.

Year	Intercept	GIM Index	DELA-WARE	ASSET	AGE	SP500	AvgMTB	N	Adj. R-squared
1990	0.044	-0.007	0.043	-0.028***	0.070***	0.231***	0.467***	963	25.52%
	(0.34)	(-1.29)	(1.31)	(-2.78)	(2.58)	(5.23)	(7.83)		
1991	0.034	-0.014**	-0.029	-0.020	0.053	0.280***	0.599***	946	25.20%
	(0.19)	(-1.97)	(-0.71)	(-1.52)	(1.31)	(5.20)	(9.65)		
1992	0.027	-0.014**	-0.033	-0.014	0.041	0.289***	0.536***	932	25.32%
	(0.15)	(-2.11)	(-0.87)	(-1.18)	(0.96)	(5.80)	(8.89)		
1993	-0.136	-0.006	-0.027	-0.011	0.047	0.258***	0.421***	959	18.23%
	(-0.82)	(-0.89)	(-0.73)	(-0.92)	(1.28)	(5.46)	(7.79)		
1994	-0.065	-0.003	0.006	-0.024***	0.060	0.258***	0.434***	936	23.28%
	(-0.43)	(-0.54)	(0.19)	(-2.30)	(1.64)	(5.92)	(8.96)		
1995	-0.125	-0.004	0.000	-0.018	0.062	0.281***	0.399***	919	15.12%
	(-0.72)	(-0.60)	(0.00)	(-1.35)	(1.73)	(5.63)	(6.91)		
1996	-0.082	-0.003	0.009	-0.018	0.048	0.320***	0.414***	895	15.65%
	(-0.41)	(-0.43)	(0.22)	(-1.34)	(1.12)	(5.84)	(7.02)		
1997	-0.129	0.002	0.028	-0.029**	0.087	0.436***	0.436***	841	18.45%
	(-0.55)	(0.25)	(0.63)	(-2.08)	(1.62)	(7.38)	(7.36)		
1998	-0.041	-0.006	0.008	-0.045***	0.131***	0.607***	0.486***	835	25.69%
	(-0.20)	(-0.74)	(0.17)	(-2.94)	(2.92)	(9.55)	(8.36)		
1999	-0.921	-0.012	-0.012	0.022	0.190***	0.498***	0.652***	774	24.00%
	(-3.25)	(-1.10)	(-0.20)	(1.07)	(3.10)	(6.56)	(7.70)		
2000	-0.320	-0.016	0.056	-0.025	0.166***	0.558***	0.525***	711	25.06%
	(-1.38)	(-1.66)	(1.05)	(-1.31)	(3.46)	(7.60)	(7.65)		
2001	-0.069	-0.019*	-0.014	-0.025	0.080	0.483***	0.498***	667	21.23%
	(-0.27)	(-1.82)	(-0.25)	(-1.16)	(1.41)	(6.44)	(6.90)		
2002	0.039	-0.011	0.018	-0.052***	0.117***	0.439***	0.338***	657	18.55%
	(0.18)	(-1.30)	(0.38)	(-3.07)	(2.58)	(7.09)	(5.18)		
2003	0.020	-0.018	-0.030	-0.027	0.041	0.373***	0.434***	617	16.42%
	(0.07)	(-1.71)	(-0.53)	(-1.27)	(0.77)	(5.04)	(5.55)		
Mean	-0.123	-0.009***	0.002	-0.023***	0.085***	0.379***	0.474***		
T-stat	(-1.85)	(-5.42)	(0.22)	(-5.03)	(6.65)	(11.50)	(21.33)		

*** significant at 1%; ** significant at 5%; * significant at 10%.

Table IV (Continued)

Panel B

This table reports results from a model in which market-to-book ratios during 1990-2003 are regressed on, among other variables, the contemporaneous value of the BCF Index and average market-to-book ratio during 1980-1985 (MTB80-85). Other independent variables are the same as those included in panel B of table 1. White heteroscedasticity consistent t-statistics are in parentheses below the coefficient estimates.

Year	Intercept	BCF Index	MTB80-85	OTHER	ASSET	AGE	DELA-WARE	ROA	CAPEX	LEV	RD	N	Adj. R-squared
1990	-0.151	0.019	0.378***	-0.004	0.023*	-0.023	0.017	2.956***	-0.266	0.018	0.077***	374	46.31%
	(-1.40)	(0.57)	(7.13)	(-0.59)	(2.02)	(-0.66)	(0.63)	(11.34)	(-1.50)	(0.79)	(3.31)		
1991	-0.294	0.016	0.609***	-0.001	0.021	0.036	-0.035	1.770***	-0.237	-0.043	-1.500***	368	42.86%
	(-2.17)	(0.45)	(9.77)	(-0.13)	(1.57)	(0.88)	(-1.09)	(6.38)	(-0.72)	(-1.64)	(-4.49)		
1992	-0.390	0.000	0.535***	0.006	0.019	0.021	-0.031	2.746***	0.277	0.015	-1.164***	361	45.01%
	(-2.96)	(0.00)	(9.16)	(0.80)	(1.57)	(0.54)	(-1.03)	(8.30)	(0.69)	(0.57)	(-2.64)		
1993	-0.419	-0.015	0.345***	0.007	0.006	0.041	-0.016	2.947***	0.331	0.005	-0.485***	379	38.81%
	(-3.01)	(-0.42)	(5.85)	(0.88)	(0.50)	(1.00)	(-0.53)	(9.04)	(1.58)	(0.20)	(-2.70)		
1994	-0.334	-0.052	0.320***	0.012	0.000	0.013	-0.019	3.784***	0.499	0.054*	-0.324	369	44.22%
	(-2.46)	(-1.58)	(6.20)	(1.63)	(0.00)	(0.33)	(-0.71)	(7.54)	(1.58)	(1.82)	(-1.38)		
1995	-0.435	0.020	0.391***	-0.004	0.019	0.032	0.011	2.946***	0.659	-0.003	-1.639***	363	32.25%
	(-3.23)	(0.56)	(6.79)	(-0.49)	(1.48)	(0.95)	(0.33)	(8.27)	(1.53)	(-0.10)	(-3.20)		
1996	-0.485	-0.009	0.384***	-0.007	0.028***	0.033	-0.013	3.256***	0.537*	-0.014	-0.174	349	38.14%
	(-3.39)	(-0.25)	(6.63)	(-0.76)	(2.21)	(0.89)	(-0.40)	(7.44)	(1.92)	(-0.46)	(-0.56)		
1997	-0.506	0.007	0.314***	-0.004	0.043***	0.009	-0.021	3.592***	-0.047	0.058*	0.106	329	35.73%
	(-3.14)	(0.18)	(5.52)	(-0.41)	(3.21)	(0.21)	(-0.64)	(7.64)	(-0.30)	(1.68)	(0.28)		
1998	-0.680	-0.057	0.400***	0.019*	0.071***	-0.006	-0.006	4.030***	-0.278	-0.012	0.936***	326	45.12%
	(-4.52)	(-1.35)	(6.64)	(1.85)	(5.04)	(-0.17)	(-0.17)	(9.17)	(-1.26)	(-0.41)	(3.33)		
1999	-1.027	-0.036	0.514***	0.008	0.079***	0.038	0.045	3.829***	-0.225	-0.011	0.674	298	35.43%
	(-5.18)	(-0.67)	(6.61)	(0.57)	(4.06)	(0.93)	(0.99)	(6.28)	(-0.75)	(-0.26)	(1.16)		
2000	-0.971	0.030	0.518***	0.009	0.067***	0.045	0.046	3.481***	1.207*	-0.039	-0.335	277	38.93%
	(-5.25)	(0.57)	(6.64)	(0.64)	(4.03)	(1.18)	(1.09)	(8.04)	(1.65)	(-1.03)	(-0.84)		
2001	-0.536	-0.004	0.484***	0.014	0.045***	-0.012	0.010	2.600***	0.896	-0.058*	0.457***	262	32.93%
	(-2.63)	(-0.07)	(6.73)	(0.98)	(2.27)	(-0.31)	(0.22)	(5.78)	(1.39)	(-1.82)	(14.31)		
2002	-0.236	-0.103***	0.276***	0.022***	0.026**	-0.037	-0.007	3.942***	-1.104*	0.036	1.736***	269	46.58%
	(-1.51)	(-2.20)	(5.07)	(2.34)	(2.04)	(-1.11)	(-0.21)	(10.56)	(-2.48)	(1.45)	(6.29)		
2003	-0.242	-0.042	0.367***	0.008	0.003	-0.022	0.000	3.072***	0.742	0.030	0.434	261	25.56%
	(-1.07)	(-0.69)	(4.91)	(0.65)	(0.17)	(-0.47)	(0.00)	(5.26)	(0.97)	(0.92)	(0.94)		
Mean	-0.479	-0.016	0.417***	0.006***	0.032***	0.012	-0.001	3.211***	0.214	0.003	-0.086		
T-stat	(-6.90)	(-1.61)	(15.83)	(2.48)	(4.74)	(1.64)	(-0.22)	(19.32)	(1.32)	(0.27)	(-0.34)		

*** significant at 1%; ** significant at 5%; * significant at 10%.

FOOTNOTES

[1] See, for example, Perfect and Wiles (1994), Chung and Pruitt (1994) and Lewellen and Badrinath (1997).

[2] Note that we do not include insider ownership and the square of inside ownership in the analyses. These variables are used by BCF in their regression models.

[3] In addition to documenting serial correlations we carry out the following time series analyses of Tobin's q. Pooled regression analysis shows that values of q lagged up to 20 years are significantly associated with current q when included in the model simultaneously. The magnitudes of the coefficient estimates decrease as the order of lag increases. Panel models with firm fixed effects using up to 10 lags yield similar results. The distribution of autocorrelation values derived from firm-by-firm time-series regressions tightens significantly around 0 as the number of lags is increased from 1 to 5 (because we have a maximum of 23 data points for each firm, higher order lags cannot be used in individual firm regression). The average value of coefficient estimates (and absolute coefficient estimates) from individual firm regressions declines significantly as the order of lag increases. Finally, following Cochrane (1988) and Vuolteenaho (2000) we tabulate the variance of k-th order differences of the market-to-book ratio of our sample firms. Consistent with Vuolteenaho's (2000) results for the aggregate market-to-book ratio we find that the normalized variance of the k-th order differences in the cross-section of the market-to-book ratio declines with the order of the difference. All results can be made available by the corresponding author.

[4] We also plotted the mean market-to-book ratios during 1980-2003 for firms with the highest and lowest values of the governance indices in two additional years, 1995 and 2000. These plots are similar to the ones in Figure 2.