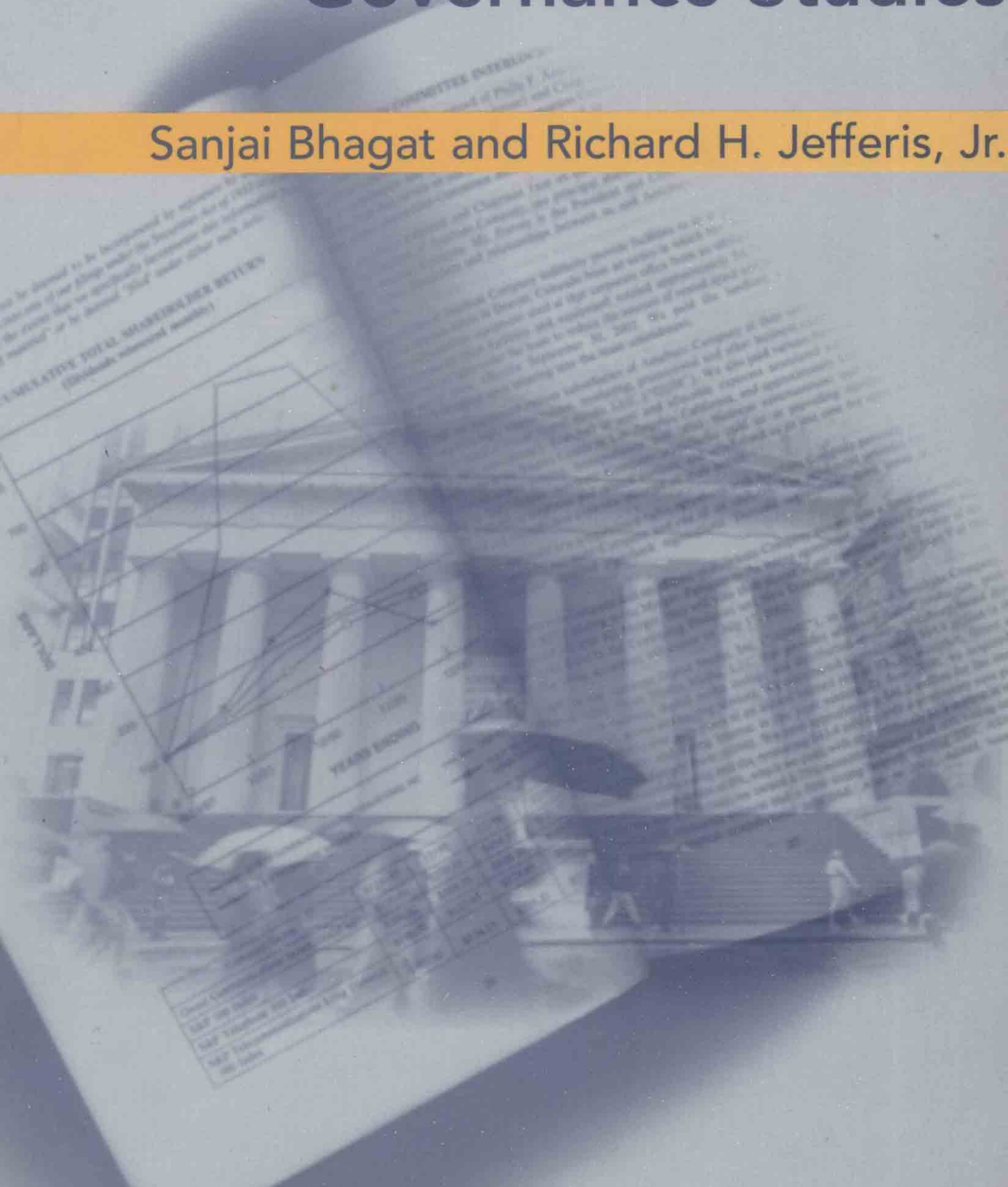


The Econometrics of Corporate Governance Studies

Sanjai Bhagat and Richard H. Jefferis, Jr.



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Preface

A vast theoretical and empirical literature in corporate finance considers the interrelationships between corporate governance, takeovers, management turnover, corporate performance, corporate capital structure, and corporate ownership structure. Most of the extant literature considers the relationship between two of these variables at a time—for example, the relationship between ownership and performance or the relationship between corporate governance and takeovers. *We argue that takeover defenses, takeovers, management turnover, corporate performance, capital structure, and corporate ownership structure are interrelated. Hence, from an econometric viewpoint, the proper way to study the relationship between any two of these variables would be to set up a system of simultaneous equations that specifies the relationships between these six variables. However, specification and estimation of such a system of simultaneous equations are nontrivial.* To illustrate this problem in a meaningful manner, we consider the following two questions that have received considerable attention in the literature and have significant policy implications: (1) do anti-takeover measures prevent takeovers, and (2) do antitakeover measures help managers enhance their job tenure?

Publicly held corporations often adopt antitakeover measures that make a company takeover that is opposed by that company's management more difficult (and sometimes impossible). More often than not, a management-opposed takeover results in the departure of these managers from the target company. Hence, antitakeover measures, while ostensibly intended to prevent management-opposed takeovers, may also aid the managers of the particular company in increasing (the security of) their job tenure. During the past two decades an overwhelming majority of publicly held U.S. corporations have adopted such antitakeover measures.

In this book, we examine the impact of firm performance, ownership structure, and corporate takeover defenses on takeover activity and managerial turnover. Our focus is the efficacy of corporate takeover defense. The literature suggests that takeovers and the managerial labor market serve to discipline poor performers in the managerial ranks and also suggests that corporate takeover defenses are designed to shield incumbent managers from these forces. If this is in fact the case, and the belief that motivates the adoption of takeover defenses is rational, the presence of these defenses should be associated with a decline in takeover activity and extended job tenure for managers.

The results presented here provide little support for this hypothesis. We find that antitakeover measures are not effective in preventing takeovers, nor are they effective in enhancing management's job tenure. We do observe a negative correlation between takeover activity and takeover defense that is statistically significant. However, when we control for the financial performance of the company, we do not observe the negative relation between takeover activity and takeover defense. In a model that allows the relationship between performance and takeover activity to vary with takeover defense, we find that defensive activity is ineffective.

In the case of management turnover, our results are even stronger. The frequency of CEO departures is uncorrelated with the status of takeover defenses at firms in our sample. This statement is consistent with both simple correlations and with the estimates from probit models, where we find that turnover is related to performance. At firms with poison pill defenses, there is a statistically significant relationship between management turnover and performance.

We stress that these results do not imply that defensive activity is costless to shareholders. It may well be the case that managers who are shielded by takeover defenses perform less well than they would have had the takeover defenses not been in place. This hypothesis is consistent with both the results reported here and with indirect evidence from announcement returns. Our evidence does, however, suggest quite strongly that takeover defenses are not completely effective in insulating managers from the consequences of poor corporate financial performance.

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Contents

Preface ix

Acknowledgments xi

1 Introduction 1

2 Econometrics of Corporate Governance Studies 9

3 Sample Construction and Data 43

**4 Joint Distribution of Takeovers, Managerial Turnover, and
Takeover Defense 55**

5 Bootstrap Regression Results 65

6 Probit Models 75

7 Summary and Conclusions 89

Appendix: Sensitivity Analysis 93

References 107

Index 115

1.1 Historical Perspective

Corporate managers are the dominant power brokers in large, U.S. corporations. Roe (1994) notes that our particular political and economic history might be responsible for the dominance of corporate managers. A substantial literature going back to Berle and Means (1932) has noted the relative lack of accountability of corporate managers and argued that corporate performance in the United States would be improved if corporations had monitors to oversee the managers (see Jensen and Meckling 1976). After World War II through the early 1970s, the United States was the dominant economic power in the world. This economic dominance in this period is consistent with the argument that the corporate governance and power structure that had evolved here was appropriate for the United States—that is, corporate America was delivering the goods. Hence, there was no need to reconsider the corporate power structure. Others might argue that U.S. global economic dominance in this period was a direct result of the war, which had destroyed the physical and economic infrastructure of most other major economic players in the world.

By the late 1970s, it seemed evident to even casual observers of the economy that U.S. corporations were losing their global competitive edge. Observers in the popular media argued that the decline in our global competitiveness was due to mismanagement of corporate resources by corporate managers. The argument went that corporate managers were more interested in increasing and managing their empires; serving the shareholders' interest was of secondary importance. These observers noted that the reason managers were successful in engaging in such behavior was lack of meaningful oversight of their decisions and lack of an alternate power with disciplining authority.

In the 1980s, hostile bidders (raiders) perhaps served this monitoring or disciplining role. However, concerns about the role of such raiders on the long-term impact on corporations and about the near-term impact on other stakeholders were raised (see Bhagat, Shleifer, and Vishny 1990). At some point in the late 1980s, hostile takeovers became much rarer; Comment and Schwert (1995) provide a discussion and potential explanations of this. Starting in the early 1990s, both the popular and academic commentators started emphasizing the monitoring role of “relational investors” (see Bhagat, Black, and Blair 2001).

1.2 Corporate Antitakeover Devices

Some have suggested that corporate antitakeover devices (such as antitakeover amendments and poison pills) played a role in diminishing the occurrence of takeovers in the late 1980s. Antitakeover amendments are proposed by corporate boards and approved by shareholders; these amendments amend the corporate charter to make control of the corporation more difficult without the existing board’s approval. A classified board amendment provides for the election of typically a third of the board in any annual election; this extends the time required to elect a majority in the board. A fair-price provision may require that all shareholders be paid the same price that any potential acquirer paid for any shares during a certain period. Some corporations have amended their charter to reincorporate in Delaware—a state that is generally considered to be manager-friendly. Poison pills are typically adopted without shareholder approval. While poison pills come in many flavors, they typically impose a very high cost on a potential acquirer that is disapproved of by the board. For example, the pill may require the acquirer to assume large financial liabilities, dilute the acquirer’s equity, or lessen the voting power of the acquirer’s equity. Brickley, Lease, and Smith (1988) and Bruner (1991) offer descriptions of these antitakeover provisions.

1.3 The Econometric Problem of Measuring the Impact of Antitakeover Provisions

The theoretical and empirical literature in corporate finance considers the interrelationships between corporate governance, take-

overs, management turnover, corporate performance, corporate capital structure, and corporate ownership structure. Most of the extant literature considers the relationship between two of these variables at a time—for example, the relationship between ownership and performance or the relationship between corporate governance and takeovers.

The following is a sampling from the above-mentioned literature: Pound (1987) and Comment and Schwert (1995) consider the effect of takeover defenses on takeover activity; Morck, Shleifer, and Vishny (1989) examine the effect of corporate ownership and firm performance on takeover activity and management turnover; DeAngelo and DeAngelo (1989), Martin and McConnell (1991), Denis and Serrano (1996), and Mikkelsen and Partch (1997) consider the effect of firm performance on management turnover; Denis, Denis, and Sarin (1997) consider the effect of ownership structure on management turnover; Bhagat and Jefferis (1991) consider the impact of corporate ownership structure on takeover defenses; Ikenberry and Lakonishok (1993) investigate the effect of firm performance on takeover activity; Berkovitch, Israel, and Spiegel (1998) examine the impact of capital structure on management compensation; Mahrt-Smith (2000) studies the relationship between ownership and capital structure; Garvey and Hanka (1999) investigate the impact of corporate governance on capital structure; McConnell and Servaes (1990), Hermalin and Weisbach (1991), Loderer and Martin (1997), Cho (1998), Himmelberg, Hubbard, and Palia (1999), and Demsetz and Villalonga (2001) study the relationship between ownership structure and corporate performance; and DeAngelo and DeAngelo (2000) and Fenn and Liang (2001) focus on ownership structure and the corporate payout policy.

We argue that takeover defenses, takeovers, management turnover, corporate performance, capital structure, and corporate ownership structure are interrelated. Hence, from an econometric viewpoint, the proper way to study the relationship between any two of these variables would be to set up a system of simultaneous equations that specifies the relationships between these six variables. However, specification and estimation of such a system of simultaneous equations are nontrivial.

For example, econometric models that acknowledge the possibility that performance, ownership, and takeover defenses influence takeovers do not necessarily yield consistent estimates for the parameters of interest. Identification requires some combination of exclusion restrictions, assumptions about the joint distribution of the error

terms, and restrictions on the functional form of the structural equations. Maddala (1983) discusses restrictions that identify the model when the error terms are normally distributed. Identification in *single-equation* semiparametric index models—where the functional form is unknown and the explanatory variables in that equation are continuous, known functions of a basic parameter vector—is discussed by Ichimura and Lee (1991). Estimation of a system of equations in the absence of strong restrictions on *both* the functional form of the equations and the joint distribution of error terms is, to the best of our knowledge, an unsolved problem.

We are unaware of a model of takeover defense that implies specific functional forms. If these functions are linear, identification may be attained through either strong distributional assumptions or exclusion restrictions. Maddala (1983) and Amemiya (1985) discuss restrictions on the error terms that identify the model in the absence of exclusion restrictions. But these restrictions are inconsistent with incentive-based explanations of takeover defense, since unobservable characteristics of managerial behavior or type will be reflected in all of the error terms. Exclusion restrictions are therefore the most likely path to identification.

The hypothesis that we wish to test—that takeover defense affects the likelihood of takeover activity—suggests that exclusion restrictions would be difficult to justify. Intuitively, variables that affect the likelihood of a takeover will be reflected in the structure of takeover defenses.

To illustrate the above-mentioned econometric problems in a meaningful manner, we consider the following two questions: (1) do antitakeover measures prevent takeovers, and (2) do antitakeover measures help managers enhance their job tenure?

We examine the impact of firm performance, ownership structure, and corporate governance (which includes corporate antitakeover devices) on takeover activity and managerial turnover. Our focus is the impact of corporate takeover defense on the relationship between performance and takeover activity and the impact of corporate takeover defense on the relationship between performance and managerial turnover.

The literature suggests that takeovers and the managerial labor market discipline poor performers in the managerial ranks and also suggests that takeover defenses are proposed by incumbent managers to shield themselves from these forces; Jarrell, Brickley, and Netter

(1988) summarize this literature.¹ DeAngelo and Rice (1983) characterize such self-serving behavior as the managerial entrenchment hypothesis.

An alternative interpretation of corporate takeover defenses is that they represent an agreement that alters the distribution of bargaining power among managers, shareholders, the board of directors, and outsiders but not necessarily in a manner that favors managers. Specifically, such takeover defenses may provide managers with additional incentives to invest in firm-specific human capital and to negotiate a higher bid premium in a takeover; DeAngelo and Rice (1983) characterize this as the shareholder interests hypothesis. Knoeber (1986) points to a "fundamental paradox" between these two hypotheses: he notes that proponents of the managerial entrenchment hypothesis oppose takeover defenses since they inhibit takeovers that are a voluntary transaction between target and bidder shareholders. Knoeber argues that takeover defenses are also a voluntary transaction among target shareholders, board of directors, and managers. A manager who is shielded by takeover defenses must still answer to a board of directors; both management and the board may be vulnerable to pressure from quarters other than the direct threat of a hostile takeover. The recent experience of American Express, IBM, and General Motors illustrates this point

By contrasting the relationship between performance and takeovers (or managerial turnover) at firms that have takeover defenses with the relationship between performance and takeovers (or managerial turnover) at firms that do not have takeover defenses, we seek to learn whether defensive activity does in fact insulate managers from market discipline. The evidence from this investigation complements the indirect evidence from announcement returns.

Our effort builds on the work of Palepu (1986), Morck, Shleifer, and Vishny (1989), Martin and McConnell (1991), Denis and Serrano (1996), and Mikkelsen and Partch (1997), who document poor financial performance prior to takeovers. We incorporate their insights into a model that also acknowledges the potential influence of take-

1. Bhagat and Jefferis (1991) document negative announcement returns for antitakeover amendments approved by shareholders and reconcile their results with ambiguous evidence from earlier studies. Ryngaert (1988) provides evidence concerning the impact of poison pills on shareholder wealth. Poison pills are usually adopted by the board without being submitted to shareholders for approval and are associated with a statistically significant decline in shareholder wealth.

over defenses and ownership on control activity. We contribute to the growing literature on the effect of corporate governance on firm performance: Bhagat, Carey, and Elson (1999), Bhagat and Black (2001), and Core, Holthausen, and Larcker (1999). Our work emphasizes the endogeneity in the relationship among governance, ownership, performance, and compensation. We also contribute to the literature on the effect of corporate performance on management turnover: Warner, Watts, and Wruck (1988), Weisbach (1988), and Denis and Denis (1995).²

We control for the influence of ownership and takeover defense in evaluating the effect of performance on turnover.³ Finally, our econometric approach and our examination of managerial turnover as well as takeover activity distinguish our work from Pound (1987), who reports that takeover defenses are associated with a decline in the frequency of takeover activity.

The distinction between our work and that of earlier authors is significant. We show that the inference that takeover defenses decrease the frequency of takeover activity, which is consistent with the correlations reported by Pound, is spurious and attributable to the omission of performance from the econometric model. We also demonstrate that the omission of takeover defenses from a model of the relationship between takeovers (or management turnover) and performance results in a specification error that biases inference about the influence of performance on takeover activity (or management turnover). Finally, our results suggest that self-selection plays an important role in models that relate takeover defenses to performance.

We base our analysis on the experience of a choice-based sample of firms during the years 1984 through 1987. This sample has two distinctive features. First, the array of takeover defenses in place at sample firms during this time period varies widely, ranging from no defense to a combination of classified board provisions, poison pills, and fair-price amendments. *This variation, which enhances the statistical power of our analysis, would deteriorate if we considered a later time*

2. Though the results of these papers are consistent with the managerial labor market disciplining poor performance, Jensen and Murphy (1990) note that the expected costs of dismissals on managers of poorly performing firms are economically small.

3. We consider the effect of capital structure indirectly through its effect on ownership structure. A growing recent literature considers the relationship among capital structure, ownership structure, and managerial compensation. The concerns regarding the endogeneity among these relationships as noted in this book would apply to these papers.

period when a larger fraction of firms had adopted takeover defenses, especially poison pills. The time frame is also significant because it precedes the advent of restrictive state antitakeover statutes. A cross-sectional analysis based on data from a later period would reflect the presence of these state statutes; the rapid proliferation of state antitakeover statutes after 1987 and the concentration of incorporations in Delaware would make it difficult to maintain statistical power while controlling for the influence of state law.

Comment and Schwert (1995) discuss the timing of corporate antitakeover defenses and state antitakeover statutes. They plot the percentage of firms that were listed on the New York Stock Exchange and America Stock Exchange and that were covered by state antitakeover statutes from 1975 through 1991. Prior to 1986, fewer than 5 percent of the firms were covered by such state antitakeover statutes; by 1987, about 15 percent of the firms were covered, and by 1988, about 70 percent of the firms were covered by these statutes. Danielson and Karpoff (1998) document similar evidence.

We find that the joint distribution of takeover activity and takeover defense and the joint distribution of management turnover and takeover defense are consistent with the hypothesis that takeover defenses insulate managers from the discipline of the takeover market. In our sample, the frequency of takeovers at firms that have takeover defenses is much lower than the frequency of takeovers at firms that do not have defenses. This result is consistent with the findings of Pound. We also find evidence of a strong negative relationship between takeover defense and the complete turnover of top management.

An examination of financial performance suggests that it would be inappropriate to deduce from these correlations that takeover defenses attenuate the link between performance and discipline. We compare the performance of firms that experience takeovers to the performance of firms that do not experience a struggle for control and find that in the period preceding the adoption of takeover defenses, firms not involved in takeovers outperform those that are involved in subsequent takeover activity. Similar results obtain in the case of managerial turnover. These relationships, which are consistent with a disciplinary role for takeovers and management turnover, hold for both the entire sample (which includes firms without takeover defenses) and for firms that have takeover defenses. We also observe a significant relationship between ownership structure and both takeover activity and managerial turnover.

Our observations about ownership and performance motivate a cross-sectional examination of the relationship between takeover activity and takeover defense and the relationship between managerial turnover and takeover defense. Estimates from probit models indicate that performance swamps the influence of all other factors, including takeover defenses, in explaining the experience of firms with respect to managerial turnover and takeover activity. The interpretation of our results is clouded by a concern about econometric identification and specification diagnostics from the probit model. But our analysis suggests quite strongly that takeover activity and managerial turnover are linked to performance, even at firms that have takeover defenses. In the data examined here, firm performance is more important than takeover defense in explaining the frequency of takeover activity and managerial turnover.

1.4 State Antitakeover Statutes

The focus of this book is on corporate antitakeover defenses that are implemented by corporate boards (sometimes subject to shareholder approval). These corporate antitakeover defenses are distinct from state antitakeover statutes, though both attempt to make corporate takeovers more difficult.

Prior to 1982, few states had any antitakeover statute. From 1982 through 1990, 35 states enacted over 70 antitakeover statutes; the jurisdiction of these states covers about 90 percent of publicly listed U.S. corporations. Some of these statutes include stakeholder provisions that authorize corporate directors to consider the impact of a potential takeover on all corporate stakeholders, such as employees, customers, suppliers, and not just shareholders. The statutes also include control share provisions that remove the voting right of a large block shareholder (typically, a 20 percent blockholder) until a majority of all disinterested shareholders vote to restore these voting rights and labor contracts provisions that prevent firms from terminating existing labor contracts subsequent to a takeover. Karpoff and Malatesta (1989) and Wahal, Wiles, and Zenner (1995) describe and analyze these state antitakeover statutes. These and other authors document a negative impact on shareholders of affected corporations of such statutes. These studies do not explicitly consider the impact of such statutes on takeover activity.

2.1 Corporate Control, Performance, Governance, and Ownership Structure

As noted earlier, an extensive theoretical and empirical literature in corporate finance considers the interrelationships between corporate governance, takeovers, management turnover, corporate performance, corporate capital structure, and corporate ownership structure. In section 2.1, we review the theoretical and empirical literature that provides support for relationships among subsets of these variables.

2.1.1 *Corporate Control, Performance, and Governance*

The interpretation of takeovers and managerial turnover as mechanisms for discipline may be motivated by incentive-based economic models of managerial behavior. Broadly speaking, these models fall into two categories. In agency models, a divergence in the interests of managers and shareholders causes managers to take actions that are costly to shareholders. Contracts cannot preclude this activity if shareholders are unable to observe managerial behavior directly, but ownership by the manager may be used to induce managers to act in a manner that is consistent with the interest of shareholders.¹

1. This suggests a positive relationship between ownership and performance. However, as pointed out by Stulz (1988), ownership has both an incentive effect through a stake in the firm's cash flows and an entrenchment effect through control of votes. As ownership gets large enough, there is no way to take a corporation over. Recent evidence in Himmelberg, Hubbard, and Palia (1999) suggests that econometric estimation of the effect of managerial ownership may be quite difficult for the reasons noted later in this chapter.

Performance is reflected in managerial payoffs, which may be interpreted as including takeovers and managerial turnover. Grossman and Hart (1983) describe this problem.

Adverse-selection models are motivated by the hypothesis of differential ability that cannot be observed by shareholders. In this setting, ownership may be used to induce revelation of the manager's private information about cash flow or his ability to generate cash flow, which cannot be observed directly by shareholders. Performance provides information to the principal about the ability of the manager and is therefore reflected in managerial payoffs, which may include dismissal for poor performance. A general treatment is provided by Myerson (1987).

In this setting, takeover defenses may be interpreted as a characteristic of the contract that governs relations between shareholders and managers. This interpretation is clearly warranted in the case of charter amendments that are enacted through a shareholder vote. With poison pills and other defenses that are adopted unilaterally, the interpretation of takeover defenses as contract provisions may be problematical. But in either case, the presence of takeover defenses is affected by the same unobservable features of managerial behavior or ability that are linked to ownership and performance.

2.1.2 Corporate Governance and Performance

Most large American public companies have boards with a majority of independent directors; almost all have a majority of outside directors. This pattern reflects the common view that the board's principal task is to monitor management and that only independent directors can be vigorous monitors. In contrast, an insider-dominated board is seen as a device for management entrenchment (for example, Millstein 1993; American Law Institute 1994). The proposition that large-company boards should consist mostly of independent directors has become conventional wisdom. For example, guidelines adopted by the Council of Institutional Investors (1998) call for at least two-thirds of a company's directors to be independent; guidelines adopted by the California Public Employees Retirement System (1998) and by the National Association of Corporate Directors (1996) call for boards to have a "substantial majority" of independent directors. This conventional wisdom has only an occasional dissenting voice (for example, Longstreth 1994).