Preliminary and Incomplete

The Value-Maximizing Board

by

Robert Gertner and Steven N. Kaplan*

University of Chicago and NBER

First draft: December 1996

Abstract

This paper compares board and director characteristics of reverse leveraged buyout (LBO) firms controlled by LBO specialists to those of an industry- and size-matched comparison sample. We consider the boards of the reverse LBOs to be value-maximizing because of the strong incentives the LBO specialists have to structure those boards in a way that maximizes shareholder value. Relative to the comparison firms, we find that the boards of the reverse LBOs are smaller, control larger equity stakes, and meet less frequently. Relative to directors of the comparison firms, directors of the reverse LBOs are younger, have shorter tenures, are less likely to be women, and are at least as likely to serve on other boards.

* Erich Bagen and Ted Kosev provided excellent research assistance. This research has been supported by the Center For Research in Security Prices and the Center for the Study of the Economy and the State. Address correspondence to Graduate School of Business, University of Chicago, 1101 East 58th Street, Chicago, IL 60637.

1. Introduction.

Boards of directors play a fundamental role in corporate governance. The legal system instills directors with a fiduciary duty to the corporation and the board with sole responsibility to hire and fire senior management and oversee important business decisions. Furthermore, the law gives public shareholders a limited ability to impose their will on the corporation because of the business judgment rule, anti-takeover legislation, and limitations on shareholder voting. This suggests that the structure of a corporate board and the characteristics of its directors should have a large impact on firm value and performance.

While it seems obvious that board structure should affect firm performance or value, it is less obvious what board structure maximizes it. For example, CEOs typically have enormous power to run their companies.[1] Although one could question the optimality of this basic element of corporate governance, constancy across time and place suggests that centralization of power is efficient. Yet leaving top management completely unfettered is not optimal either. Senior management interests may diverge from firm-value maximization and senior management can make mistakes. A board, therefore, should be structured to minimize these problems by monitoring management and providing advice. Unfortunately, it is far from clear, theoretically, what the optimal board should look like to achieve either goal, nor what combination of the two maximizes firm value.[2]

Despite the theoretical ambiguity, there is no shortage of opinions among academics, institutional investors, the business press and other observers as to what constitutes an optimal board. For example, there is a widespread belief that outsider-dominated boards are better monitors of management and, therefore, maximize firm value -- see American Law Institute (1994), Bhagat and Black (1996), and Millstein (1993). Some have argued that smaller boards of directors are more effective -- see Lipton and Lorsch (1992), Monks and Minow (1995), Yermack (1996). The National Association of Corporate Directors (1995) recently

---

[1] For example, see Mace (1986).

[2] Although, see Hermalin and Weisbach (1996) and Warther (1994) for first attempts at modeling the monitoring function of boards of directors.

recommended that directors should receive at least some and preferably most of their compensation in equity. A number of observers criticize individuals who serve as outside directors on multiple boards and argue that those directors should restrict the number of boards on which they serve -- Millstein (1993). Finally, CREF, a large and influential institutional shareholder, recently instituted a policy of encouraging its portfolio companies to increase the diversity -- geographic, ethnic, and gender -- of its boards.

A large empirical literature exists that attempts to measure board effectiveness. This literature follows two basic research designs. The first basic design consists of regressing some measure of firm performance on board and director characteristics. While this literature has taught us a great deal, the methodology has three problems. The first is noise. The link between board structure and performance occurs concurrently with numerous other factors. Perhaps a poorly structured board will keep a CEO too long when a company falters, but the board is unlikely to be the cause of the company's performance. There may be so much going on with a company's industry and its competitive position with the industry, that it is difficult to keep these factors from overwhelming the effects of relatively small differences in board composition. The problem of noise is confounded by the second problem which is endogeneity. As Hermalin and Weisbach (1988, 1991, and 1996) stress, board structure is partially determined by firm performance. For example, a board may have many outside directors because institutional shareholders were dissatisfied with the company's performance and were able to pressure the board to nominate more outsiders. Few good instruments exist to overcome this problem. There are ways to deal with this problem and the best papers do deal with it -- Hermalin and Weisbach (1991). Nevertheless, the power of these tests is diminished. Finally, the third problem with this research design is the use of Tobin's q as a measure of firm performance.

The second basic research design involves studying the effect of board structure on an important decision such as CEO turnover -- Weisbach (1988) -- or the likelihood a firm is acquired in a hostile takeover -- Shivdasani (1993). These studies typically argue in favor of the adoption of board structures associated with the more favorable outcomes for the particular decision studied. As Bhagat and Black (1996) point out,

however, superiority on one directorial task need not imply superiority in maximizing firm value overall.

In this paper, we adopt a different, complementary research strategy from the two basic ones used in the existing literature. We identify and study a set of companies where, ex ante, the board structure should be optimal -- reverse leveraged buyouts (LBOs) financed by buyout specialists or sponsors. These companies were purchased in a leveraged buyout (LBO) with the help of an outside LBO sponsor who owned a large share of the company's stock, and subsequently went public. When these firms go public, the LBO sponsor typically controls the board's structure by virtue of its large ownership stake.

There are several reasons why a LBO sponsor is likely to choose a structure that maximizes firm value. First, as described in Jensen (1989) and Mercer (1996), the structure of LBO sponsors and partnerships provides strong incentives to maximize firm value. An equity investment by a LBO sponsor is typically made through a partnership structure in which the LBO sponsor acts as general partner. In the most common structure, the LBO sponsor receives 20% of the profits (known as the carry) of the partnership which has a life of ten to twelve years. Profits are calculated based on value delivered to limited partners either in cash from the sale of portfolio companies or in distributed shares of portfolio companies. Second, the LBO sponsor is not part of management and, therefore, is unlikely to derive private benefits of control. The agency effects modeled in Stulz (1988) and documented in Morck, Shleifer and Vishny (1988) are unlikely to be present.

We compare the reverse LBOs to an industry- and size-matched comparison sample. Our underlying assumption is that the board structures of these firms are less likely to maximize shareholder value than those of the reverse LBOs. We base this on the argument that, in general, boards are self-perpetuating. Absent a costly and difficult to win proxy fight, directors are chosen by a committee of the board itself. Thus, to the extent that management gets control of the board at some point in the corporation's history, management could control the board forever. Even if management does not control the board, it may not be in the board's interest to make major changes in its size, practices, or the characteristics of its directors. Directors may wish

to preserve their position, minimize conflict, and limit their workload. They may have inflated views of their own abilities. All of these may keep an independent board from structuring itself optimally. Since the board controls how directors will be paid, it is unlikely that optimal incentives would be in place to overcome these agency problems. For example, Lorsch and MacIver (1989), Mace (1986), and Jensen (1989 and 1993) all argue that this characterization describes the board of directors of many U.S. corporations.

Our empirical strategy is very simple. We collect detailed data on board structure and directors for a sample of fifty-nine companies that completed reverse LBOs between 1987 and June 1993 and had a sponsor or LBO partnership which retained an equity stake after the initial public offering (IPO). We compare these companies to an industry- and size-matched comparison sample. We follow the reverse LBOs and comparison companies for three year -- from the fiscal year that includes the IPO to the second fiscal year after the IPO.[3]

We study a number of board and director characteristics focusing on the measures noted above which have received significant attention including board size, the number and percentage of insiders and outsiders, directors' equity ownership, director and CEO compensation, number of formal meetings, directors' age, profession, sex, and other directorships.

Relative to the comparison firms, we find that the boards of the reverse LBOs are smaller, control larger equity stakes, and meet less frequently. Relative to directors of the comparison firms, directors of the reverse LBOs are younger, have shorter tenures, are less likely to be women, and are at least as likely to serve on other boards.

The main qualification to our strategy and results is that our sample is not a random sample of

[3] Holthausen and Larcker (1996) report some board characteristic data for a sample of reverse LBOs. They do not, however, distinguish between reverse LBOs with and without LBO sponsors, nor do they compare the reverse LBOs with a control sample.

companies, so that the value-maximizing board for our sample companies may not be the same as the value-maximizing board for a typical company. The main bias we see is that the reverse LBOs are more likely to have a large, knowledgeable outside shareholder than a typical corporation. The LBO sponsor will have the incentive and ability to monitor management. This may reduce the need to structure the board of directors to be optimal monitors and may push these companies toward boards which are designed to give strategic advice to management or strengthen outside relationships. The obvious effect of this bias is to strengthen the results that indicate reverse LBO boards are more monitoring oriented -- smaller, younger, less diverse boards -- and to weaken the results that they are less monitoring and more advice oriented -- fewer meetings.

The remainder of the paper is organized as follows. Section 2 presents a brief review of the existing evidence. Section 3 describes our sample selection procedure and variable definitions. Section 4 presents our results. Finally, section 5 discusses the implications of our results and concludes.

2. Existing Evidence

2.1 Performance-composition studies

Bhagat and Black (1996), Hermalin and Weisbach (1991), Agrawal and Knoeber (1996), and Yermack (1996) all examine the relationship between board characteristics and Tobin's q where Tobin's q is a measure of firm performance.

Yermack (1996) finds that Tobin's q declines with board size and with the fraction of outsiders on a firm's board. As mentioned above, one of the major drawbacks of this kind of study is the endogeneity of board size and composition. Yermack makes no attempt to address the endogeneity problem.

Bhagat and Black (1996) consider the relation between the fraction of independent (outsiders) directors and firm performance. They do not find any consistent results. Their sample, however, is seriously flawed. Their sample is selected in 1991, yet they use performance data from 1983 to 1993. Furthermore,

their board composition and ownership data are also from 1991 exposing them to the endogeneity criticism. Hermalin and Weisbach (1988), Denis and Sarin (1996), and Agrawal and Knoeber (1996) provide strong evidence that board composition, board ownership, and firm performance are strongly related.

Hermalin and Weisbach (1991) also consider the relation between the fraction of outsiders and firm performance. They do so carefully in a simultaneous equation framework using lagged board shareholdings as an instrument. They do not find any strong relationships.

It is worth adding that the use of Tobin's q as a measure of performance by the cited papers as well as in other papers on corporate governance is questionable. For example, papers in the capital structure literature typically use Tobin's q as a measure of growth opportunities while papers in the asset pricing literature arguably use Tobin's q (proxied by market-to-book ratios) as a measure of risk or future returns.

Overall, then, we view this literature as suggestive, but inconclusive about optimal board structure.

2.2 Major decision-composition studies

A number of papers study corporate decisions as a function of board composition. They typically find results consistent with a monitoring role for outside directors. While these results are statistically significant, they tend to be economically quite modest. Weisbach (1988) finds that CEO turnover is more sensitive to firm performance in firms with a higher proportion of outside directors. Similarly, Yermack (1996) finds that CEO turnover is more sensitive to firm performance in firms with smaller boards. Byrd and Hickman (1992) find that announcement to tender offer bidders increase with the percentage of outside directors.

Bhagat and Black (1996) and Hermalin and Weisbach (1996) provide a more detailed discussion and more examples of these types of papers.

Again, the papers in this literature are suggestive, but inconclusive about optimal board structure.

3. Sample Selection and Definitions

3.1. Reverse LBOs

To obtain a sample of reverse LBO firms, we searched the LEXIS/NEXIS database and used a list of reverse LBOs provided by Merrill Lynch. We include companies that satisfy the following criteria:

I. The company completed an IPO dated between 1987 and June 1993 (to ensure post-IPO data availability).

II. The company had previously undergone a leveraged buyout.

III. The leveraged buyout was organized by an identifiable leveraged buyout partnership or sponsor which retained a post-IPO equity stake.

IV. The company's stock price and other financial data are available on COMPUSTAT and the Center for Research in Security Prices (CRSP).

Fifty-nine firms satisfied these criteria. Of these firms, 3 went public in 1987, 2 in 1988, 4 in 1989, 5 in 1990, 20 in 1991, 24 in 1992, and 5 in 1993.

3.2 Comparison Firms

We compare the board and director characteristics of the reverse LBOs to an industry- and size-matched comparison sample. We matched firms on size because it is well-known that firm governance characteristics -- particularly ownership -- vary with firm size. We matched firms by industry to control for the possibility that the optimal amount of monitoring and advice may vary by industry as well as to control for the possibility of other unknown industry effects on boards.

We used the following procedure to create the comparison sample. For each reverse LBO, we searched the COMPUSTAT industrial and research databases for firms with the same primary four-digit standard industrial classification (SIC) code and net sales that were within 50% of the sales of the reverse LBO at the end of the fiscal year of the IPO. We chose the comparison firm with the sales closest to the

reverse LBO. If no comparison firms satisfied the industry and size criteria, we searched for comparison firms at the three-digit level, and then at the two-digit level. For any company matched at the two-digit level, we used annual reports or 10K filings to confirm that the comparison company operated in a similar industry to the reverse LBO. If we found no matches within 50% of sales, we repeated the procedure looking for matches within 100% of sales. This occurred in five instances.

We obtained 59 comparison firms. Of these, 55% were matched at the four-digit level, 19% at the three-digit level, and 26% at the two-digit level.

Table 1 presents financial data for the reverse LBOs and the comparison firms. In the fiscal year including the IPO, the median firm in both groups has sales, assets, and market value of equity of roughly $500 to $600 million. The table indicates that the mean and median sales, assets, market values of equity, and operating income to sales (where operating income equals earnings before interest, taxes, and depreciation or EBITDA) for the two groups of firms are economically and statistically similar. The only statistical difference across the two samples is a higher mean operating income to assets for the reverse LBO firms. Table 1 also indicates that the financial data for the two sets of firms remain economically and statistically similar in the first and second fiscal years after the IPO.

3.3. Definitions

In what follows, we begin collecting data on board and director characteristics from the first proxy statement issues after the IPO. The proxy statement generally follows the end of the fiscal year that includes the IPO. We also report results for the two fiscal years that follow. For comparison companies, data are taken from the proxy statements in the years corresponding to the reverse LBO proxy statements.

We define insiders as those directors currently employed or employed in the past by the company in a capacity other than director. Outsiders are defined as those directors neither employed by the company nor employed by the LBO sponsor firm. LBO sponsors are defined as those directors employed by the LBO

sponsor firm. We also divided directors by profession. Executives are individuals employed or retired from a corporate management or consulting position. All other definitions are self-explanatory.

4. Results

4.1 Board Composition

We report board composition for both samples in Table 2. The most striking difference between the LBO boards and the control boards is size. In the IPO year, the LBO boards average 8.19 directors while the control sample averages 9.95. (The difference diminishes only slightly over the subsequent two years.) The smaller number of total directors is driven by a smaller number of both inside and outside directors. At the same time, the percentage of directors who are insiders is not statistically different for the two samples, although it is smaller for the reverse LBOs (at 29.3%) than for the comparison firms (at 31.8%).

There are several interpretations of these results. The first is that optimal board size is small. Board members may wish to expand the size of boards because it allows each individual director to evade some responsibility, it allows a constant workload to be spread over more individuals, or board members want to distribute the perk of board membership to associates. Management may wish to expand board size because free-riding may give management greater ability to control the board. Furthermore, a larger board means a larger number of directors are needed to form a controlling bloc, which could make it much more difficult to organize a successful attack on management. Our results and this interpretation are consistent with those in Yermack (1996).

Alternatively, one might argue that the presence of an LBO sponsor explains the result. For example, the presence of a strong monitor may reduce the number of additional directors needed. Additionally, the LBO sponsor may want to maintain control over the company by controlling a large fraction of board seats. The best way to do this may be to have a board which is smaller than optimal. On average the LBO sponsor has 3.1 board seats in the year of the IPO. Three out of eight votes may provide a stronger

coalition than three out of ten votes. We believe the evidence is less consistent with this alternative interpretation. The difference in board size persists over time even as the LBO sponsor reduces both its equity ownership and the number of board seats it holds.

4.2 Board Ownership

Table 3 compares board ownership of the company's equity across samples. The reverse LBO directors own much more equity than their control group counterparts. Virtually all of it is driven by the ownership of the LBO sponsors, who own over 1/3 of the equity in the year of the IPO. The LBO sponsor's share declines from 36.4% in the fiscal year including the IPO to 24.9% in the second fiscal year after the IPO. The remaining directors of the LBO firms own roughly the same amount of stock as the entire control firm boards in the year of the IPO and about half in subsequent years. This is somewhat surprising given high managerial ownership in most LBOs. Apparently the LBO boards do not feel a need to require non-LBO sponsor directors to hold large stakes in the company.[4]

4.3 Compensation

Table 4 reports board and CEO compensation. In the fiscal year including the IPO, directors' cash compensation is virtually identical at $22,800 and $22,400, respectively for the reverse LBO and comparison firm boards. In subsequent years, the two diverge a bit with the LBO firms increasing and control firms decreasing. Although the differences become marginally statistically significant, we do not think that a $4,000 average and $1,500 median difference have much economic significance. It is not surprising that director pay is not very different given that an outside directors' monetary compensation for serving on a board is unlikely to create significant incentives.

[4] Future drafts of this paper will explore the ownership data in more detail.

In the next draft, we expect to calculate and report the results for equity-based compensation of directors.

Similarly, the cash compensation paid to CEOs does not vary significantly between the two samples. Without looking at non-cash compensation and performance data, it is difficult to interpret this result.

4.4 Meeting and Committee Structure

LBO boards have fewer formal meetings than the control companies. This is reported in Table 5. The LBO boards meet an average of 5.73 times annually while the control firms meet 6.62 times annually. Committees also seem to meet less frequently. The difference, however, is only significant for the audit committee with a difference of 0.7 meetings annually in year 1. The difference is significant all three years. The averages for the executive and compensation committees are not significant.

This is a somewhat surprising result. There has been considerable criticism of boards because they do not do enough, are poorly informed about the details of the firm's business, and because many directors are spread too thin because of their full-time jobs and / or numerous directorships. Our results appear to be inconsistent with this view.

One interpretation of this result is that the received wisdom is simply wrong and that boards should do less not more. However, there is a second interpretation that the number of formal meetings is a bad measure of how much work the board and its committees actually do. Communication between directors and management or among directors and committee members may play a much larger role in the monitoring and advisory functions of the board. Informal and formal procedures are likely to be substitutes. If this interpretation is correct counting board and committee meetings does not capture how hard the board works and may in fact proxy the exact opposite.

We find the second interpretation more plausible, but we have no evidence to distinguish between them. It is certainly a question that deserves more attention.

Table 5 also contains analyses of the composition and size of board committees. The LBO board committees are smaller than the control board committees across the board. The average committee size is about 20% smaller, which is the same ratio as overall board size.

4.5 Director Characteristics

Table 6 indicates that reverse LBO directors are different from control firm directors in a number of a ways. The most striking difference is age: the average age of a reverse LBO director is 51.7 years compared to 58.7 years for comparison firm directors. Part of this difference is due to the youth of the directors affiliated with the LBO sponsor whose average age is 46.4 years. However, both inside directors and outside directors not affiliated with the LBO sponsor are significantly younger in the reverse LBOs than in the control firms. Outside unaffiliated directors are five years younger in the reverse LBOs than in the control firms.

The LBO firm directors also differ from control firm directors by sex. The average reverse LBO board has only 0.19 women compared to 0.44 women on the average comparison firm board. Similarly, only 2.3% of all reverse LBO directors are women compared to 4.6% of comparison firm directors. Both differences are significant at the 5% level. Disaggregating, the difference is greater for outside directors than insiders, although we lose statistical significance. The difference in the number of women directors cannot be attributed to fewer women managers or fewer women LBO sponsor affiliates in the LBO firms.

A greater percentage of LBO firm outside directors who are not LBO sponsors are executives or consultants rather than private investors, lawyers, academics, politicians, or other. These differences persist through the entire sample period.

These results suggest that boards that are more likely to be value maximizing are less diverse. This interpretation is strengthened by the fact that diversity arguably plays a larger advisory role than monitoring role. If so, one would expect greater diversity where other factors -- in the case of reverse LBOs, stock

ownership -- provide more monitoring. Of course, it also possible that LBO sponsors do not correctly perceive the value of diversity.

Finally, table 6 reports that reverse LBO directors sit on more other boards than comparison firm directors. This is primarily due to LBO sponsor directors who sit on an average of nearly four other boards. However, this is not the whole story. The other outside directors of the LBO firms sit on an average of 2.21 other boards while outside directors of the control firms sit on only 1.85 other boards. This difference is significant at 10% level. The CEOs of the two sets of firms server on roughly the same number of other boards. These results appear to be inconsistent with the criticism of directors being spread too thin by sitting on too many boards. It is also interesting to note that the LBO sponsors do not seem to feel that five or more directorships is too many. We do not know responsibilities other than sitting on boards the LBO sponsor representatives have.

5. Implications and Conclusions

Our goal in this paper was to present additional empirical evidence on the nature of the value maximizing board of directors. To do so, we have focused on a sample of firms -- reverse LBOs with buyout sponsors -- that have strong incentives to structure their boards in a value maximizing way. It is important to stress, therefore, that this approach reflects the buyout sponsors' perception of what constitutes a value maximizing board. Nevertheless, our approach complements (and, in some cases, strengthens) those studies that relate board characteristics directly to firm performance and to firm decisions.

As expected from previous research on LBOs, the largest difference between the reverse LBO and comparison company boards is equity ownership. Beyond that, the boards of the two groups are broadly similar. Nevertheless, we document several differences that are suggestive of optimal board structure. Relative to the comparison firms, we find that the boards of the reverse LBOs are smaller and meet less frequently. Relative to directors of the comparison firms, directors of the reverse LBOs are younger, have

shorter tenures, are less likely to be women, and are at least as likely to serve on other boards.

References

Agrawal, Anup and Charles Knoeber, 1996, Firm performance and mechanisms to control agency problems between managers and shareholders, Journal of Financial and Quantitative Analysis.

American Law Institute, 1994, Principles of corporate governance.

Bhagat, Sanjai and Bernard Black, 1996, Do independent directors matter? Working paper, Columbia University.

Booth, J. and D. Deli, 1996, Factors affecting the number of outside directorships held by CEOs, Journal of Financial Economics 40, 81-104.

Brickley, James, Jeffrey Coles, and Rory Terry, 1994, Outside directors and the adoption of poison pills, Journal of Financial Economics 35, 371-390.

Denis, David and Atulya Sarin, 1996, The structure and ownership and control in publicly traded corporations, Working paper, Purdue University.

Fama, Eugene, 1980, Agency problems and the theory of the firm, Journal of Political Economy 88, 288-307.

Fama, Eugene and Michael Jensen, 1983, Separation of ownership and control, Journal of Law and Economics 26, 301-325.

Gilson, Stuart, 1990, Bankruptcy, boards, banks and blockholders, Journal of Financial Economics 27, 355-388.

Hermalin, Benjamin and Michael Weisbach, 1989, The Determinants of board composition, Rand Journal of Economics 19, 589-606.

Hermalin, Benjamin and Michael Weisbach, 1991, The effects of board composition and direct incentives on firm performance, Financial Management 20, 101-112.

Hermalin, Benjamin and Michael Weisbach, 1996, Endogenously chosen board of directors and their monitoring of the CEO, American Economic Review, forthcoming.

Holthausen, Robert and David Larcker, 1996, The financial performance of reverse leveraged buyouts, Journal of Financial Economics 42, 293-332.

Jensen, Michael, 1989, The Eclipse of the public corporation, Harvard Business Review, 61-74.

Jensen, M., 1993, The modern industrial revolution, exit and the failure of internal control systems, Journal of Finance 48, 831-880.

Kaplan, Steven, 1989, The effects of management buyouts on operations and value, Journal of Financial Economics 24, 217-254.

Klein, April, 1995, Firm productivity and board committee structures, Working paper, New York University.

Lipton, Martin and Jay Lorsch, 1992, A modest proposal for improved corporate governance, Business Lawyer 48 (1), 59-77.

Lorsch, Jay with Elizabeth MacIver 1989, Pawns or potentates. Boston: Harvard Business School Press.

Mace, Myles, 1986, Directors: Myth and reality (Harvard Business School Press, Boston, MA).

Mercer, 1996, ???

Millstein, Ira, 1993, The evolution of the certifying board, Business Lawyer 48, 1485-1497.

Monks, Robert and Nell Minow, 1995, Corporate governance (Basil Blackwell, Cambridge).

Morck, Randall, Andrei Shleifer and Robert Vishny, 1988, Managerial ownership and market valuation: An empirical analysis, Journal of Financial Economics 20, 293-315.

National Association of Corporate Directors, 1995, Report of the NACD Blue Ribbon Commission on Director Compensation, Washington, DC.

Shivdasani, Anil, 1993, Board composition, ownership structure and hostile takeovers, Journal of Accounting and Economics 16, 167-198.

Stulz, Rene, 1988, Managerial control of voting rights, Journal of Financial Economics 20, 25-59.

Warther, Vince, 1994, Board effectiveness and board dissent: A model of the board's relationship to management and shareholders, Working paper, University of Michigan.

Weisbach, Michael, 1988, Outside directors and CEO turnover, Journal of Financial Economics 20, 431-460.

Yermack, David, 1996, Higher market valuation of companies a small board of directors, Journal of Financial Economics 40, 185-202.

Table 1
Summary financial statistics for reverse LBOs and comparison firms

Average and medians of financial variables in fiscal year including IPO and two fiscal years thereafter for 59 reverse LBO firms with buyout sponsor which went public from 1987 to 1992 and for 59 comparison firms. Comparison firms are matched by industry and size as described in the text. Mean or median of comparison firms is significantly different from reverse LBO firms at the 1% level ***; at the 5% level **; at the 10% level *.

	Reverse LBO Firms				**Comparison Firms**			
	Mean	Med.	St. D.	N	Mean	Med.	St. D.	N
	Fiscal Year Including IPO							
Sales ($M)	1,336	609	2,705		1,240	618	2,785	
Assets ($M)	1,578	574	4,251		1,144	521	2,144	
Market value of equity ($M)	838	506	1,619		961	569	1,532	
Operating income to sales (%)	18.8%	15.3%	11.2%		16.9%	12.0%	13.9%	
Operating income to assets (%)	19.1%	16.5%	15.9%		14.9%*	15.1%	8.4%	
	N=59				N=59			
	First Fiscal Year After IPO							
Sales ($M)	1,393	595	2,785		1,333	664	2,937	
Assets ($M)	1,655	601	4,276		1,238	642	2,175	
Market value of equity ($M)	893	441	1,403		1,020	620	1,476	
Operating income to sales (%)	17.7%	15.1%	10.1%		15.6%	10.8%	14.4%	
Operating income to assets (%)	17.0%	16.1%	10.3%		13.7%*	13.2%*	8.6%	
	N=58				N=59			
	Second Fiscal Year After IPO							
Sales ($M)	1,518	605	2,906		1,438	601	3,147	
Assets ($M)	1,706	636	4,351		1,338	757	2,429	
Market value of equity ($M)	873	493	1,297		1,016	655	1,385	
Operating income to sales (%)	17.3%	13.9%	10.3%		16.2%	12.0%	15.2%	
Operating income to assets (%)	16.3%	15.3%	10.3%		13.1%*	13.8%	7.8%	
	N=52				N=54			

Table 2
Board Composition

Average and medians of board composition variables fiscal year including IPO and two fiscal years thereafter for 59 reverse LBO firms with buyout sponsors which went public from 1987 to 1992 and for 59 comparison firms. Comparison firms are matched by industry and size as described in the text. Mean or median of comparison firms is significantly different from reverse LBO firms at the 1% level ***; at the 5% level **; at the 10% level *.

		Reverse LBO Firms				Comparison Firms			
		Mean	Med.	St. D.	N	Mean	Median	St. D.	N
Fiscal Year Including IPO									
Number of directors		8.19	8	2.05		9.95***	10***	3.13	55
Number of inside directors	2.41	2	1.43	3.05**		3***	1.62		
Percentage of inside directors		29.3%	25%	15.0%		31.8%	30%	15.5%	
Number of outside directors		5.78	6	1.92	6.90**	6.5**	2.88		
Number of directors from LBO sponsor		3.05	3	1.55	N.A.	N.A.	N.A.		
Percentage of directors from LBO sponsor		33.9%	33%	18.0%		N.A.	N.A.	N.A	
First Fiscal Year After IPO									
Number of directors		8.24	8	2.33		9.70***	10***	2.94	
Number of inside directors	2.41	2	1.45	3.03**		3**1.52			
Percentage of inside directors		28.5%	25%	14.6%		33.2%	30%*	16.8%	
Number of outside directors		5.83	6	1.98	6.66*	6.5*	2.92		
Number of directors from LBO sponsor		2.47	2	1.62	N.A.	N.A.	N.A.		
Percentage of directors from LBO sponsor		29.5%	28.6%	17.0%		N.A.	N.A.	N.A	
Second Fiscal Year After IPO									
Number of directors		8.43	8	2.23		9.76***	10***	2.79	
Number of inside directors	2.43	2	1.32	3.08**		3**1.47			
Percentage of inside directors		29.1%	25%	14.9%		32.6%	33.3%	15.5%	
Number of outside directors		6.00	6	2.13	6.68	6.0**	2.66		
Number of directors from LBO sponsor		2.39	2	1.78	N.A.	N.A.	N.A.		
Percentage of directors from LBO sponsor		28.6%	27.6%	18.0%		N.A.	N.A.	N.A	

Table 3
Board Ownership

Average and medians of board composition variables fiscal year including IPO and two fiscal years thereafter for 59 reverse LBO firms with buyout sponsors which went public from 1987 to 1992 and for 59 comparison firms. Comparison firms are matched by industry and size as described in the text. Mean or median of comparison firms is significantly different from reverse LBO firms at the 1% level ***; at the 5% level **; at the 10% level *.

		Reverse LBO Firms				Comparison Firms			
		Mean	Med.	St. D.	N	Mean	Median	St. D.	N
Fiscal Year Including IPO									
Percent shares owned by board (including LBO sponsor)	48.5%	38.2%	18.9%	14.3%***		7.8%***	15.3%		
Percent shares owned by LBO sponsor only		36.4%	35.0%	20.0%		N.A.	N.A.	N.A.	
First Fiscal Year After IPO									
Percent shares owned by board (including LBO sponsor)	34.2%	32.2%	20.3%	13.7%***		7.8%***	14.5%		
Percent shares owned by LBO sponsor only		29.0%	27.3%	21.0%		N.A.	N.A.	N.A.	
Second Fiscal Year After IPO									
Percent shares owned by board (including LBO sponsor)	30.3%	29.4%	20.3%	13.2%***		7.3%***	14.4%		
Percent shares owned by LBO sponsor only		24.9%	19.8%	21.1%		N.A.	N.A.	N.A.	

Table 4
Board Compensation

Average and medians of board compensation variables fiscal year including IPO and two fiscal years thereafter for 59 reverse LBO firms with buyout sponsors which went public from 1987 to 1992 and for 59 comparison firms. Comparison firms are matched by industry and size as described in the text. Mean or median of comparison firms is significantly different from reverse LBO firms at the 1% level ***; at the 5% level **; at the 10% level *.

	Reverse LBO Firms				**Comparison Firms**			
	Mean	Med.	St. D.	N	Mean	Median	St. D.	N
	Fiscal Year Including IPO							
Cash compensation per director ($K)	22.8	22	9.6		22.422	8.1		
Directors compensated in options or stock	25.9%				31.0%			
Compensation in stock per director	14.8	0.0	49.2	8.4	0.024.0			
Total compensation per director	37.8	25.4	52.1	30.8	25.026.5			
CEO cash compensation ($K)	797	700	470		694	610	350	
	First Fiscal Year After IPO							
Cash compensation per director ($K)	23.8	23	10.0	22.1*	22	9.1		
Directors compensated in options or stock	25.0%				31.4%			
Compensation in stock per director	5.7	0.0	13.8	8.4	0.024.0			
Total compensation per director	29.6	27.0	16.6	32.2	24.026.8			
CEO cash compensation ($K)	872	680	528		718	680	456	
	Second Fiscal Year After IPO							
Cash compensation per director ($K)	24.8	23.5	9.1		20.822	8.4		
Directors compensated in options or stock	26.7%				35.7%			
Compensation in stock per director	14.8	0.0	49.2	8.4	0.024.0			
Total compensation per director	37.8	25.4	52.1	30.8	25.026.5			
CEO cash compensation ($K)	872	810	570		824	684	643	

Table 5
Board Meeting and Committee Structure

Average and medians of board meeting and committee structure variables fiscal year including IPO and two fiscal years thereafter for 59 reverse LBO firms with buyout sponsors which went public from 1987 to 1992 and for 59 comparison firms. Comparison firms are matched by industry and size as described in the text. Mean or median of comparison firms is significantly different from reverse LBO firms at the 1% level ***; at the 5% level **; at the 10% level *.

		Reverse LBO Firms				**Comparison Firms**			
		Mean	Med.	St. D.	N	Mean	Median	St. D.	N
		Fiscal Year Including IPO							
Number of board meetings	5.73	5	2.15	6.62**		6**	2.36		
Number of members, audit committee		2.90	3	0.93	3.56***	3***	1.17		
Number of meetings, audit committee		2.19	2	1.12	2.89***	3***	1.22		
Number of members, executive committee		3.21	3	0.77	3.87***	4***	1.06		
Number of meetings, executive committee		1.79	1	2.64	2.13	1	3.40		
Number of members, compensation committee		3.11	3	0.93	3.71***	4***	1.13		
Number of meetings, compensation committee		2.88	3	1.87	3.26	3	1.94		
		First Fiscal Year After IPO							
Number of board meetings	5.58	5	1.92	5.966		2.23			
Number of members, audit committee		3.10	3	0.96	3.55*	3*	1.35		
Number of meetings, audit committee		2.41	2	1.19	2.83*	3*	1.17		
		Second Fiscal Year After IPO							
Number of board meetings	6.08	5	2.18	6.686		2.61			
Number of members, audit committee		2.87	3	0.69	3.58**	3**	1.10		
Number of meetings, audit committee		2.32	2	1.04	2.96*	3	1.29		

Table 6
Director Characteristics

Average and medians of director characteristic variables fiscal year including IPO and two fiscal years thereafter for 59 reverse LBO firms with buyout sponsors which went public from 1987 to 1992 and for 59 comparison firms. Comparison firms are matched by industry and size as described in the text. Mean or median of comparison firms is significantly different from reverse LBO firms at the 1% level ***; at the 5% level **; at the 10% level *.

	Reverse LBO Firms				**Comparison Firms**			
	Mean	Med.	St. D.	N	Mean	Median	St. D.	N
	Fiscal Year Including IPO							
Age of directors								
All directors	51.7	50	10.0	58.7***	59***	9.7		
Insiders	52.2	51	7.7	55.4***	55***	9.7		
Outsiders not affiliated with LBO sponsor	55.0	55	9.3	60.2***	60***	9.4		
Directors affiliated with LBO sponsor	46.4	46	10.2	N.A.	N.A.	N.A.		
Tenure of directors	3.2	3	3.0		10.0***	7***	9.1	
Number of women directors per board	0.19	0	0.48	0.44**	0***	0.60		
Percentage of women directors								
All directors	2.3%		15.1%		4.6%**		21.0%	
Insiders	1.6%		12.5%		2.3%		15.0%	
Outsiders not affiliated with LBO sponsor	2.9%		16.8%		5.6%		23.1%	
Directors affiliated with LBO sponsor	2.3%		15.0%		N.A.	N.A.	N.A.	
Percent of non-LBO sponsor outside directors								
Executives at other companies	72.7%				55.1%***			
CEO or chairman of other companies	38.4%				31.5%			
Private investors	4.1%				7.4%			
Lawyers 4.1%				7.7%				
Consultants	5.8%				4.4%			
Other	13.4%				25.4%***			
Number of other directorships								
All directors	2.31	1	2.84	1.46***	1***	1.93		
CEO	0.85	0	1.20	1.06	0	1.60		
Outsiders not affiliated with LBO sponsor	2.21	2	2.15	1.85*	1**	2.07		
Directors affiliated with LBO sponsor	3.71	3	3.51	N.A.	N.A.	N.A.		

Table 6 (continued)
Director Characteristics

	Reverse LBO Firms				Comparison Firms			
	Mean	Med.	St. D.	N	Mean	Median	St. D.	N
	First Fiscal Year After IPO							
Age of directors								
All directors	52.2	51	9.7		58.6***	59***	9.4	
Insiders	52.7	52	7.4		54.8***	54***	8.8	
Outsiders not affiliated with LBO sponsor	55.5	55	9.3		60.3***	61***	9.1	
Directors affiliated with LBO sponsor	47.2	46	9.8		N.A.	N.A.	N.A.	
Tenure of directors	3.8	4	3.3		9.9***	7***	8.9	
Number of women directors per board	0.16	0	0.41	0.43***	0***	0.60		
Percentage of women directors								
All directors	1.9%		13.7%		4.5%**		20.7%	
Insiders	0.8%		8.9%		1.7%		13.1%	
Outsiders not affiliated with LBO sponsor	3.1%		17.3%		5.7%		23.2%	
Directors affiliated with LBO sponsor	1.3%		11.5%		N.A.	N.A.	N.A.	
New women directors	0.017	0	0.13	0.034	0	0.18		
Percent of non-LBO sponsor outside directors								
Executives at other companies	70.3%				55.2%***			
CEO or chairman of other companies	35.4%				30.8%			
Private investors	2.6%				8.3%***			
Lawyers	3.6%			7.3%*				
Consultants	6.7%				4.4%			
Other	16.9%				24.9%**			
Number of other directorships								
All	2.49	1	3.04	1.50***	1***	1.90		
CEO	1.09	1	1.29	1.00	0	1.58		
Outsiders not affiliated with LBO sponsor	2.14	1	2.17	1.89	1	2.03		
Directors affiliated with LBO sponsor	4.48	4	3.90	N.A.	N.A.	N.A.		

Table 6 (continued)
Director Characteristics

	Reverse LBO Firms				Comparison Firms			
	Mean	Med.	St. D.	N	Mean	Median	St. D.	N
	Second Fiscal Year After IPO							
Age of directors								
All directors	53.4	53	9.5		58.9***	59***	9.2	
Insiders	53.0	53	7.3		55.3***	55***	8.7	
Outsiders not affiliated with LBO sponsor	56.7	57	8.7		60.6***	60***	9.1	
Directors affiliated with LBO sponsor	48.5	48	10.1	N.A.	N.A.	N.A.		
Number of women directors per board	0.24	0	0.47	0.47**	0**	0.67		

Percentage of women directors							
All directors		2.7%		16.2%		5.0%**	21.9%
Insiders		0.9%		9.6%		1.3%	11.5%
Outsiders not affiliated with LBO sponsor		4.4%		20.6%		6.7%	25.1%
Directors affiliated with LBO sponsor		1.7%		12.9%		N.A.	N.A. N.A.
New women directors		0.078	0	0.27	0.039	0	0.20
Percent of non-LBO sponsor outside directors							
Executives at other companies		71.4%				56.6%***	
CEO or chairman of other companies		35.7%				30.9%	
Private Investors		2.2%				9.8%***	
Lawyers	3.3%				8.0%**		
Consultants		7.7%				2.1%***	
Other		15.4%				23.5%***	
Number of other directorships							
All directors		2.35	1	2.92	1.50**	1**	1.86
CEO		1.16	1	1.46	1.09	1	1.43
Outsiders not affiliated with LBO sponsor		2.18	1	2.19	1.84*	1*	1.98
Directors affiliated with LBO sponsor		4.10	3	3.91	N.A.	N.A.	N.A.