Board Busyness and the Risk of Corporate Bankruptcy[☆]

Olubunmi Faleye
Northeastern University

Harlan Platt
Northeastern University

Marjorie Platt
Northeastern University

Abstract

Prominent among recent governance trends is the imposition of limits by companies on the number of boards on which their directors can serve. Nevertheless, prior research suggests that multiple board memberships can either reflect director quality and reputation or busyness that hinders board effectiveness. Since a fundamental fiduciary duty of directors is to ensure corporate survival, this paper examines the effect of multiple directorships on corporate bankruptcy. We find that the probability of bankruptcy increases significantly when a majority of outside directors serve on three or more corporate boards. Furthermore, while the likelihood of a bankruptcy declines with the fraction of directors who are CEOs of other firms, this is only so if outside CEO directors are not busy.

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1. Introduction

Recent corporate failures and scandals have provoked a spate of governance reforms. Prominent among these is the widespread imposition of restrictions by companies on the number of corporate boards on which their directors can serve. In a recent survey of the largest 2,000 U.S. companies, consulting firm Heidrick & Struggles reports that 54% limited the number of boards on which the CEO can serve in 2006, up from 23% in 2001, while 40% limited the number of boards on which outside directors can serve, up from 3% in 2001 (Heidrick & Struggles, 2007). Similarly, 74% of S&P 500 companies surveyed in 2011 limited other corporate directorships for their board members, versus 27% in 2006 (Spencer Stuart, 2011).

Underpinning these restrictions is the basic argument that directors' time is finite. Thus, multiple directorships can weaken board effectiveness by reducing the amount of time directors can devote to each board on which they serve. In particular, busy directors may monitor top management less effectively because of the cognitive limitations of the human mind which is exacerbated by a finite amount of time that must be spread over several boards. This diminished oversight potentially allows management to impose significant agency costs on shareholders and other stakeholders. In addition, multiple directorships can reduce the effectiveness of board advising because busy directors must divide their attention among several companies usually operating in unrelated industries due to antitrust requirements that directors cannot serve on the boards of competing firms.

Nevertheless, multiple directorships can signal director reputation, quality, and experience (Fama and Jensen, 1983; Ferris, Jagannathan, and Pritchard, 2003). Thus, individuals serving on multiple boards can be motivated to monitor more effectively in order to protect their reputational capital and are better able to do so as well as provide better quality advice due to

their experiences across several organizational contexts. Furthermore, resource dependence theory (Pfeffer and Salancik, 1978) suggests that multiple directorships can enhance organizational effectiveness by increasing the network of resources available to the firm and its directors through directors' connection to multiple outside firms and other top executives.

Expectedly, this issue has attracted significant attention in prior research. Core, Holthausen, and Larcker (1999) find that outside directors serving on more than three other boards are less effective in monitoring CEO compensation, which is in turn associated with weaker firm performance. Beasley (1996) shows that the likelihood of accounting fraud increases with the average number of directorships held by outside directors. Similarly, Fich and Shivdasani (2006) show that firms with busy boards, that is, those in which a majority of outside directors serve on three or more boards, exhibit lower firm value, reduced profitability, and lower sensitivity of CEO turnover to firm performance. More recently, Ahn, Jiraporn, and Kim (2010) find that busy boards are associated with lower acquisition returns. In contrast, Ferris, Jagannathan, and Pritchard (2003) present evidence suggesting that multiple directorships do not increase the likelihood of securities fraud litigation. While these and related studies focus on the effect of directors' busyness on different aspects of board effectiveness in value creation and monitoring management, the objective of this paper is to answer the more fundamental question of whether multiple directorships impact the likelihood of corporate failure.

Corporate bankruptcies provide a valuable setting for several reasons. First, corporate survival is arguably a first order fiduciary responsibility of directors. Porter (1991, p. 95) notes that "the reason why firms succeed or fail is perhaps the central question in strategy." Thus, examining the impact of multiple directorships on the likelihood of corporate failure permits an analysis of its effect on the board's fundamental duty of ensuring corporate survival. Second,

financially distressed firms require significant board attention to design and execute a turnaround plan that prevents eventual failure. In addition, they are in a better position to benefit from the connections, expertise, and reputations of directors. Thus, corporate bankruptcies provide significant power to test whether multiple directorships detract the board from effectively performing its duties or improve board performance through enhanced director quality and reputation.

Our sample consists of 79 companies that filed for bankruptcy protection in the U.S. over 1999–2009 and a control sample of 206 non-bankrupt firms. Results suggest that multiple directorships play a significant role in determining the incidence of corporate bankruptcies. First, 25% of bankrupt firms have a busy board, compared with 20% of healthy firms. Second, the probability of a bankruptcy filing increases significantly with board busyness after controlling for financial and other corporate governance characteristics, with a busy board increasing the probability of bankruptcy by 11.1 percentage points on average. Furthermore, while the likelihood of a bankruptcy declines significantly with the fraction of directors who are CEOs of other firms, this is only so if such outside CEO directors are not busy.

As summarized earlier, prior research suggests that widespread multiple directorships negatively impact board effectiveness in the normal course of a firm's business, leading to poorer executive incentives and inferior firm performance. Our results complement these findings by showing that such busyness hinders board effectiveness even in times of crisis when the firm faces significant financial pressures. More importantly, these results offer key evidence on whether multiple board memberships reflect over-commitment and directors spread too thin or simply signal director reputation and quality. Our finding that multiple directorships are

associated with an increase in the likelihood of bankruptcy casts a significant doubt on the reputation interpretation of multiple board memberships.

This paper also contributes to the debate on the appropriate measure of board busyness. Ferris, Jagannathan, and Pritchard (2003) measure busyness using the average number of directorships per board member and find that this measure is not associated with monitoring weaknesses. In contrast, Fich and Shivdasani (2006) propose an indicator variable based on the prevalence of directors holding multiple board appointments based on the argument that average directorship is subject to the undue influence of a few directors serving on an excessive number of boards. Our results confirm this dichotomy. We find no relation between average board membership and the likelihood of a bankruptcy. Rather, we find that the indicator variable based on the prevalence of busy directors significantly predicts the incidence of bankruptcy.

The rest of the paper is organized as follows. The next section discusses our sampling procedures and data sources; it also presents descriptive statistics on main variables. Section 3 contains our empirical analyses and discussions. Section 4 concludes with a brief summary.

2. Sampling and data

Our sample comes from the intersection of three databases. We begin with 523 public and private companies that filed for bankruptcy protection during 1999–2009 from the UCLA–LoPucki Bankruptcy Research Database. Since our research questions require information on corporate boards, we merge these data with the Riskmetrics directors database. Riskmetrics provides information on the boards of directors of S&P 1500 firms. This restricts us to the largest 1,500 public companies in the United States[1] and reduces the sample to 79 bankrupt companies. Using COMPUSTAT, we obtain financial and accounting data for each of these companies and

[1] We caution that our results should be interpreted with this caveat in mind.

the solvent companies in the Riskmetrics database. We then match each bankrupt company with at least one solvent company based on size (measured by total assets) and industry (based on SIC code) in the year before the bankruptcy filing, using the one-to-many matching design advocated by Zmijewski (1986). The final sample includes 285 firms, consisting of 79 bankrupt and 206 non-bankrupt companies.

2.1. Variable definitions

Since our objective is to examine the impact of board busyness on the likelihood of corporate bankruptcy, the dependent variable in our tests is a binary variable that equals one for bankrupt firms and zero for non-bankrupt or healthy firms, while our primary explanatory variable of interest is board busyness. Following Fich and Shivdasani (2006), we define an independent director as busy if he/she serves on three or more corporate boards, including the focal company's board. We then aggregate this at the board level and define a board as busy if at least 50% of its independent directors are busy. We recognize that other factors besides board busyness affect the incidence of corporate bankruptcy. Therefore, we control for several variables identified in prior studies as important determinants of corporate failure. We group these control variables into two categories: financial variables and governance variables.

It is well documented that several financial variables predict the likelihood of corporate bankruptcy. The most common among these are operating profitability, leverage, and firm size (see Bellovary, Giacomino, and Akers (2007) for a recent review). We define operating profitability as the ratio of earnings before interest, taxes, and depreciation (EBITDA) to total assets, leverage as the ratio of total debt (long-term plus short-term debt) to total assets, and firm size as the natural logarithm of revenue. Financial variables are measured as of the end of the fiscal year preceding the year of bankruptcy filing.

The governance variables include board size, board composition, CEO age, average director age, and the proportion of outside CEO directors (Daily and Dalton, 1994; Dowell, Shackell, and Stuart, 2011). We measure board size as the number of directors and use two variables to measure board composition. The first is the proportion of independent directors, that is, directors who are unaffiliated with the firm or any of its employees beyond their service as directors. The second is the proportion of gray directors. These are non-employee directors who are nonetheless affiliated with the firm through business and/or personal connections. Our measures of CEO and director age are the natural logarithm of the CEO's age in years and the natural logarithm of the average age of all directors, also in years. Finally, we define the proportion of outside CEO directors as the fraction of directors who are CEOs of other firms. Governance variables are measured as of the last available proxy statement filed at least one year before the commencement of bankruptcy proceedings provided that the proxy statement date is not older than three years prior to the year of bankruptcy.[2]

Table 1 presents summary statistics for these variables. The first panel presents descriptive statistics for all companies. The second panel presents and compares descriptive statistics for bankrupt and non-bankrupt firms. It shows that bankrupt firms are significantly smaller than non-bankrupt firms, with mean and median revenue of $1.8 billion and $1.3 billion, respectively, compared to $2.8 billion and $2.4 billion for non-bankrupt firms. The table also shows that bankrupt firms are more indebted, with average total debt ratio of 62%, compared to 30% for non-bankrupt firm. Furthermore, bankrupt firms are less profitable. Their operating profitability ratio averaged 2%, compared to 15% for non-bankrupt firms.

[2] The distribution of proxy statement dates is as follows: one year prior to bankruptcy filing date, 56 companies (73.7%); two years prior, 18 (23.7%); three years prior, 2 (2.6%).

As for the board structure variables, Panel B of Table 1 shows that bankrupt firms have smaller and less independent boards. Specifically, board size averages 8.8 directors among bankrupt firms, compared to 10.0 directors among financially healthy firms, while the respective percentages of independent directors are 61% and 67% for bankrupt and non-bankrupt firms. Bankrupt firms also have younger directors, with mean director age of 56.7 years, versus 59.4 years for non-bankrupt firms.

3. Empirical analysis

We begin our empirical tests by examining the incidence of busy boards among bankrupt and non-bankrupt firms. Of bankrupt companies, 25% had a busy board as of the most recent proxy statement preceding the bankruptcy filing. In contrast, 20% of non-bankrupt firms had a busy board during the equivalent period. While this suggests that board busyness is positively related with the incidence of corporate bankruptcy, the univariate test of differences in proportion indicates that the difference is not statistically significant. Of course, univariate tests only provide preliminary evidence since they do not control for other relevant factors. Therefore, we perform multivariate tests that allow us to control for the effects of other variables that impact the likelihood of corporate bankruptcy.

The dependent variable in these tests is an indicator variable that equals one for bankrupt firms and zero for non-bankrupt firms. Logit regression analysis is a common methodological choice for analyzing binary outcome variables because of its statistical powers (Lo, 1986) and its flexibility (McFadden, 1984) as a result of its non-linear form. Therefore, our multivariate tests employ logit regression analysis as in Platt and Platt (1991). Equation (1) details the form of the estimating equation.

$$P_i = \frac{1}{[1 + exp^{-(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_n X_{in})}]} \qquad (1)$$

where: P_i = probability of bankruptcy of the i^{th} firm,
X_{ij} = j^{th} variable of the i^{th} firm, and
β_j = estimated coefficient for the j^{th} variable.

The dependent variable, P_i, denotes whether a sample firm filed for bankruptcy or avoided it during the sample period. The model's explanatory variables are as discussed above in the preceding section. Specifically, the model includes three financial variables (firm size as measured by the natural log of revenue, leverage as measured by the ratio of total debt to total assets, and profitability as measured by the ratio of EBITDA to total assets), a busy board indicator variable, and several other measures of board structure such as board size, board independence, and the proportion of outside CEO directors. The model also includes year and industry fixed effects to control for common macroeconomic and industry factors, respectively, although we do not report the coefficients of fixed effects to maintain parsimony. Results are presented in Table 2.

The first column serves as the baseline model. Its explanatory variables consist of only the financial variables and year and industry fixed effects. As Table 2 shows, each variable is statistically significant at the 5% level or less and the model has a significant explanatory power. Its pseudo R^2 is 0.735 and it correctly classifies 86.8% and 96.0% of bankrupt and non-bankrupt firms, respectively, for an overall classification accuracy of 93.3%. As expected, firm size is negatively related with the likelihood of bankruptcy, that is, larger firms are significantly less likely to fail. The coefficient implies that an increase of one standard deviation in firm size is associated with a reduction of 4.2 percentage points in the probability of a bankruptcy filing. Since the unconditional probability of a bankruptcy in the regression sample is 30.6%, this is an

economically non-trivial reduction of 13.9% in the likelihood of corporate failure. Similarly, the coefficient of operating profitability implies that the likelihood of bankruptcy declines by 24.1 percentage points for an increase of one standard deviation in profitability. In contrast, financial leverage is positively related with corporate failure, with the coefficient implying that an increase of one standard deviation in total debt ratio is associated with an increase of 20.0 percentage points in the probability of a bankruptcy filing.

The second column of Table 2 introduces the busy board indicator variable and the other corporate governance variables. This increases the model's pseudo R^2 to 0.848 and its classification accuracy to 92.1%, 97.1%, and 95.6% for bankrupt, non-bankrupt, and all firms, respectively. Thus, the addition of board structure variables significantly improves the model's predictive power, suggesting that corporate governance plays an important role in corporate failures, beyond the impact of traditional financial ratios. As Table 2 shows, the busy board variable is positive and significant at the 5% level. Thus, companies with boards on which a majority of independent directors hold three or more directorships are significantly more likely to fail. The coefficients imply that the average marginal effect of a busy board is an increase of 11.1 percentage points in the likelihood of corporate bankruptcy. Relative to the unconditional probability of a bankruptcy in the sample of 30.6%, this is economically non-trivial.

Besides board busyness, two other board structure variables are statistically significant, namely, average age of directors and the fraction of outside CEO directors. Both coefficients are negative, implying that the likelihood of corporate failure declines with the average age of directors as well as the proportion of directors who are CEOs of other companies. Specifically, an increase of one standard deviation in the average age of directors and the proportion of

outside directors who are CEOs of other companies reduces the probability of a bankruptcy by 19.4 and 7.7 percentage points, respectively.

In contrast to an indicator variable based on the number of directors serving on a threshold number of boards, Ferris, Jagannathan, and Pritchard (2003) propose the average number of board memberships per director as an alternative measure of board busyness. Fich and Shivdasani (2006) suggest that this measure masks true board busyness because it is susceptible to the influence of a few directors serving on a large number of boards. Consistent with this, they show that average directorships have no impact on firm value even though the indicator variable for board busyness does. The third column of Table 2 presents results of a regression that uses average directorships rather than the indicator variable as the measure of board busyness. As the table shows, this variable is positive but not significant at conventional levels. This suggests that employing average board memberships as the measure of board busyness weakens the power of statistical tests to detect the impact of directors' busyness on board effectiveness.

Our result on outside CEO directors is similar to Daily and Dalton (1994) who also find that the probability of corporate failure declines with the proportion of CEO directors. Thus, it appears that the experience, skill, and reputation of CEO directors allow them to ameliorate the risk of corporate bankruptcy. Nevertheless, it is also the case that CEO directors are usually some of the most time-constrained board members due to the nature of their professional obligations at their primary employers. Therefore, we examine whether the effectiveness of CEO directors in reducing the probability of bankruptcy is diminished by service on multiple boards. To accomplish this, we first categorize each CEO director as busy or non-busy, depending on whether he/she serves on three or more corporate boards (busy) or less than three boards (non-

busy). We then estimate a regression where we employ the fractions of busy and non-busy CEO directors in place of the combined fraction of CEO directors.

As the fourth column of Table 2 shows, the proportion of non-busy CEO directors is negative and significant at the 1% level. Its coefficient implies that an increase of one standard deviation in the proportion of non-busy CEO directors reduces the probability of corporate bankruptcy by 7.7 percentage points. In contrast, the proportion of busy CEO directors is not significantly associated with the likelihood of bankruptcy. Thus, CEO directors are effective in reducing bankruptcy risk only when they are not excessively busy via service on multiple boards. We obtain similar results in the fifth column where we employ the respective numbers (rather than fractions) of busy and non-busy CEO directors.

Overall, our results suggest that a preponderance of directors with multiple appointments reduces board effectiveness in attenuating the risk of corporate failure. Nevertheless, they also raise the question of whether financially distressed firms attract board members with multiple directorships in order to benefit from their potential expertise and connections. We reject this alternative explanation for several reasons. First, prior research (e.g., Gilson, 1989; Wiesenfeld, Wurthmann, and Hambrick, 2008) shows that corporate bankruptcy exerts significant reputational and career costs on top executives and directors of affected firms. Thus, rational reputable directors will not choose to join the boards of financially distressed and failing firms. Furthermore, D'Aveni (1990) shows that board changes around bankruptcy are consistent with reputable directors leaving the board rather than joining it prior to a bankruptcy filing. Finally, mean and median years of board service for busy independent directors on the boards of bankrupt firms are 7.0 and 5.9 years, respectively, which is inconsistent with busy directors joining the board to help avert a bankruptcy. Also, these tenure averages are not significantly

different from the mean and median tenure of busy independent directors serving on the boards of healthy firms at 6.7 and 6.0 years, respectively.

4. Summary and conclusion

A recent trend in corporate governance practice is the widespread imposition of limits on the number of boards on which directors can serve concurrently. These limits often are based on the argument that multiple directorships hinder board effectiveness by reducing the time and attention that directors can devote to each board on which they serve. Yet it is possible that service on multiple boards reflects a director's reputation, quality, and access to external resources, potentially contributing to board effectiveness. This paper evaluates these arguments by examining the impact of board busyness on the risk of corporate failure.

We find that the probability of bankruptcy is significantly higher when a majority of independent directors serve on three or more corporate boards. In particular, a busy board increases the likelihood of bankruptcy by 11.1 percentage points. Thus, our findings are consistent with multiple directorships detracting from, rather than enhancing, board effectiveness. Nevertheless, it is important to note that we do not find that average board membership per director has any impact on the likelihood of corporate bankruptcy. Consequently, our results do not necessarily support the imposition of hard limits on the number of directorships. Instead, they suggest that board effectiveness can be enhanced by limiting the number of busy directors who simultaneously serve on multiple corporate boards rather than by imposing hard limits on board memberships for all directors.

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Table 1: Summary statistics

Bankrupt equals 1 for firms that filed for bankruptcy protection during 1999–2009, 0 otherwise. Firm size is the natural log of revenue. Leverage is the ratio of total debt to total assets. Operating profitability is the ratio of EBITDA to total assets. Board size is the number of directors. Busy board equals 1 if at least 50% of independent directors serve on three or more corporate boards. Percent independent directors, percent gray directors, and percent outside CEO directors are the respective fractions of directors who are not affiliated with the firm beyond their directorships, non-employee directors with business or personal connections to the firm, and CEOs of other firms. CEO age is the natural log of CEO age in years. Average director age is the natural log of the average age of all directors in years. In Panel B, ***, **, and * indicate that the statistic for bankrupt firms is significantly different from the corresponding statistic for non-bankrupt firms at the 1%, 5%, and 10% levels, respectively.

Panel A

	Sample size	First quartile	Mean	Median	Third quartile	Standard deviation
Bankrupt	285	0.00	0.28	0.00	1.00	0.45
Firm size	285	6.69	7.81	7.58	8.74	1.43
Leverage	284	0.19	0.39	0.36	0.49	0.27
Operating profitability	285	0.07	0.11	0.11	0.17	0.13
Board size	281	8.00	9.68	9.00	11.00	2.42
Busy board	281	0.00	0.21	0.00	0.00	0.41
Percent independent directors	281	0.56	0.66	0.70	0.82	0.21
Percent gray directors	281	0.00	0.15	0.11	0.25	0.17
Percent outside CEO directors	281	0.00	0.14	0.11	0.20	0.14
CEO age	281	3.93	4.00	4.01	4.09	0.13
Average director age	281	4.03	4.07	4.07	4.12	0.07

Panel B

	Bankrupt firms			Non-bankrupt firms		
	Sample size	Mean	Median	Sample size	Mean	Median
Firm size	79	7.49**	7.13**	206	7.93	7.79
Leverage	79	0.62***	0.59***	205	0.30	0.32
Operating profitability	79	0.02***	0.05***	206	0.15	0.13
Board size	79	8.85***	9.00***	202	10.00	10.00
Busy board	79	0.25	0.00	202	0.20	0.00
Percent independent directors	79	0.61*	0.67	202	0.67	0.70
Percent gray directors	79	0.20**	0.14	202	0.14	0.11
Percent outside CEO directors	79	0.13	0.11	202	0.14	0.11
CEO age	79	3.98**	3.99**	202	4.01	4.01
Average director age	79	4.04***	4.06***	202	4.08	4.08

Table 2: Logit regression results

The dependent variable equals 1 for bankrupt firms and 0 for non-bankrupt firms. Firm size is the natural log of revenue. Leverage is the ratio of total debt to total assets. Operating profitability is the ratio of EBITDA to total assets. Board size is the number of directors. A busy director serves on three or more corporate boards. Busy board equals 1 if at least 50% of independent directors are busy. Average boards per director is the average number of other corporate boards on which directors serve. CEO directors are directors who are CEOs of other firms. Independent directors are directors not affiliated with the firm beyond their directorships. Gray directors are non-employee directors who have business or personal connections to the firm. Director percentages are fractions of the full board. Each regression includes fixed effects for year and 2-digit primary SIC codes. Numbers in parentheses are robust standard errors. Levels of statistical significance are indicated by ***, **, and * for 1%, 5%, and 10% levels, respectively.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Firm size	-0.598**	-1.675***	-1.169**	-2.201***	-2.256***
	(0.27)	(0.48)	(0.54)	(0.63)	(0.64)
Leverage	14.692***	36.456***	29.581***	38.300***	39.847***
	(2.27)	(9.49)	(6.98)	(8.69)	(9.54)
Operating profitability	-37.935***	-84.193***	-64.749***	-90.912***	-91.734***
	(9.60)	(24.29)	(16.94)	(22.66)	(23.69)
Board size		-0.430	-0.692**	-0.389	-0.169
		(0.27)	(0.33)	(0.28)	(0.28)
Busy board		4.390**	----	3.609**	3.759**
		(1.83)		(1.66)	(1.64)
Average boards per director		----	1.592	----	----
			(1.11)		
Percent independent directors		10.111	3.335	9.235	5.936
		(7.71)	(4.83)	(7.08)	(6.37)
Percent gray directors		-5.430	-7.326	-3.877	-8.817
		(6.54)	(5.60)	(6.99)	(7.21)
Natural log of CEO age		-2.580	-3.325	-1.729	-1.866
		(5.18)	(5.00)	(6.03)	(5.77)
Natural log of average director age		-87.524***	-61.682***	-90.462***	-90.579***
		(24.59)	(16.56)	(26.74)	(25.88)
Percent CEO directors		-18.331**	-12.122**	----	----
		(8.36)	(5.60)		
Percent busy CEO directors				-9.019	----
				(6.65)	
Percent non-busy CEO directors				-24.784***	----
				(7.60)	
Number of busy CEO directors				----	-1.225
					(0.75)
Number of non-busy CEO directors				----	-2.536***
					(0.87)
Observations	252	248	248	248	248
Pseudo R^2	0.735	0.848	0.832	0.852	0.852
Classification accuracy:					
Bankrupt firms	86.84%	92.11%	90.79%	92.11%	92.11%
Non-bankrupt firms	96.02%	97.09%	97.67%	97.67%	97.67%
All firms	93.25%	95.56%	95.56%	95.97%	95.97%