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Does Board Independence Increase Firm Value? Evidence from Closed-End Funds

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Abstract

Researchers disagree about the impact of board independence on firm value. The disagreement generally stems from the endogenous nature of board appointments. I add new evidence to this discussion by using a sample of closed-end funds to document the value-enhancing effects of independent boards. Using cross-sectional, difference-in-differences, and instrumental variables techniques, I address these endogeneity concerns and find consistent evidence that board independence is associated with higher firm value.

I. Introduction

Regulatory agencies, stock exchanges, and advisory firms have sought to promote board independence for much of the last two decades. Despite this industry focus on the issue and a rich academic literature on boards of directors, empirical evidence of the benefits of board independence on firm value has been limited. This study aims to address this question by focusing on a sample of closed-end funds. These funds have governance structures identical to other corporations but provide an advantageous environment for studying the effects of governance decisions. I find strong and consistent evidence that board independence increases firm value and better aligns director decision making with the interests of shareholders.

The value of independent boards has been questioned in academic research. A substantial number of studies, including Hermalin and Weisbach (1991), Mehran (1995), Yermack (1996), Klein (1998), and Bhagat and Black (1999), find no relation between board independence and firm value. Others, such as Agrawal and Knoeber (1996) and Kumar and Sivaramakrishnan (2008), suggest that board independence might actually have a negative effect on firm value, at odds with the sentiment of most regulatory guidelines. A small group of studies provide evidence of a positive relation between board independence and firm

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value. Rosenstein and Wyatt (1990) use a sample of outside director appointments between 1981 and 1985 to show a positive stock price reaction following the announcement. Nguyen and Nielsen (2010) find a negative stock price reaction in a sample of 108 sudden deaths of independent directors. Knyazeva, Knyazeva, and Masulis (2013) use the supply of local director talent as an instrument for board independence and document a positive effect on firm value. Finally, Coles, Daniel, and Naveen (2008) suggest that the value of board independence depends on the type of firm; firms committed to research and development (R&D) benefit from having more insiders on the board because firm-level knowledge is especially important in these cases. Much of the disagreement on this issue stems from the endogenous nature of director appointments; recent firm performance can bias cross-sectional tests in a variety of ways, as detailed by Hermalin and Weisbach (2003), Boone, Field, Karpoff, and Raheja (2007), and others.

By focusing on a sample of closed-end funds, this article avoids some of the concerns found in a broader study. Specifically, the closed-end fund discount (or "premium," to prevent confusion with the sign) can be used as a direct and frequently observed measure of the disparity between market value and the value of the underlying assets. The closed-end fund premium is due at least in part to observable factors (see Cherkes (2012) for a full review of documented determinants of closed-end fund premiums), and if governance produces value, it should appear in this measure. Most of the literature using broader samples of industrial corporations relies on Tobin's Q, a noisy measure affected by infrequent observations, inconsistent accounting, and varying opportunity sets and growth options. Alternatively, a study of general corporations might employ an event-study framework similar to Rosenstein and Wyatt (1990) or Nguyen and Nielsen (2010), but these also face challenges because of small sample sizes and difficulty controlling for market expectations of firm reactions to the specific event.

In this article, I first document consistent evidence in cross-sectional ordinary least squares (OLS) regressions that independent boards increase shareholder value. Point estimates indicate that a 10% increase in independent directors increases fund values by approximately 53 basis points (bps). The endogeneity concerns raised by Hermalin and Weisbach (1988), (1998), (2003) relate to independent directors being appointed during times of poor firm performance. I next test whether the OLS estimate is biased in this regard by examining the performance-related factors that lead to increases in board independence. I find that funds are indeed more likely to increase board independence following poor net asset value (NAV) performance and when the fund is trading at larger discounts to NAV. The true effect of board independence may therefore be understated by the OLS model.

I next move to verify the positive relation between board independence and firm value using a variety of techniques to address endogeneity. I first use a difference-in-differences method centered on a series of announcement dates pertaining to 2001 amendments to the Investment Company Act of 1940 (hereafter, 1940 Act), which regulates investment funds. These amendments require firms to maintain 50% board independence and to only allow independent directors to be involved in the nomination and appointment of new independent directors. They therefore increase the presence and power of independent directors at any

firm that did not already meet these minimum requirements before the amendments. I find that fund premiums increase in affected firms following the announcement of the amendment proposal and following the announcement of the amendments' implementation, consistent with the positive relation between board independence and firm value.

I then use an instrumental variables (IV) approach to verify the relation between independence and firm value. A valid instrument must be correlated with board independence but otherwise unrelated to fund performance. As an instrument, I use the board independence observed at the initial public offering (IPO) for the first fund issued by the fund family. Independence at this time is unaffected by fund performance because there is no performance record at the time of the IPO. However, the IPO-year board independence should affect independence in subsequent periods through the overlap of directors, both over time and across funds within a family. The test suggests that board independence increases firm value by a significantly larger amount than that stated by OLS. A 10% increase in independent directors increases firm value by approximately 118 bps.

I next use propensity score matching to match funds in the bottom quartile of board independence to similar funds in the top quartile of board independence on the basis of investment style category, prior-year performance, and portfolio characteristics. The procedure produces a similar set of funds along observable dimensions of investment styles. The low-board-independence sample averages fund premiums 1.58% lower than the matched sample of high-independence funds, whereas a regression on the matched sample estimates that a 10% increase in board independence increases firm value by 109 bps.

As a final verification, I confirm the positive relation in an event-study framework around changes to board composition. This specification considers all changes to board independence. It therefore avoids any directionality bias found in previous event studies such as Rosenstein and Wyatt (1990) and discussed in Hermalin and Weisbach (2003). The results of the test confirm the findings of prior tests; increases (decreases) to board independence result in increases (decreases) to fund premiums.

Numerous studies document that independent boards serve shareholder interests through superior monitoring. These benefits typically relate to issues such as compensation practices (Ryan and Wiggins (2004)), financial accounting integrity (Anderson, Mansi, and Reeb (2004), Karamanou and Vafeas (2005)), CEO turnover-performance sensitivity (Weisbach (1988), Borokhovich, Parrino, and Trapani (1996)), takeover premiums (Byrd and Hickman (1992), Cotter, Shivdasani, and Zenner (1997)), or general advising of the chief executive officer (CEO) (Hermalin and Weisbach (1988), Dalton, Daily, Johnson, and Ellstrand (1999), and Fich (2005)). With this consistently positive evidence of the effect of independence on firm operations, it is especially puzzling that there is such disagreement on how independence relates to firm value.

In addition to examining the effect of independence on firm value, I follow the lead of this literature by investigating whether independent boards act in the interest of shareholders. I first look to expense ratios, which provide a direct measure of potential value extraction from shareholders. If independent boards are acting in the interests of shareholders, I expect expense ratios to be lower when

boards are more independent. I find that this is the case; a 10% increase in board independence relates to expense ratios that are 5–7 bps lower, on average. I then examine two dimensions of the fund's communications with investors. I first use U.S. Securities and Exchange Commission (SEC) enforcement actions, used as a measure of fraud in the literature, to show that more independent boards are associated with a lower likelihood of financial misrepresentation. I next test the impact of board independence on destructive return-of-capital practices, a way for funds to artificially inflate distribution rates by funding distributions from principal instead of returns. The practice is highlighted as a concern in multiple releases from the Financial Industry Regulatory Authority (FINRA).[1] I find that destructive return of capital occurs less frequently when boards are more independent. I conclude that independent directors provide more effective monitoring and disclosure practices that benefit shareholders, which is consistent with the overall positive effect on fund values.

Other studies use closed-end funds to test the effects of governance. Del Guercio, Dann, and Partch (2003) investigate board composition in these funds and document a lower expense ratio for independent boards. They find no relation, however, between board independence and fund premiums. The sample used in Del Guercio et al. is based on a single year of board observations, taken from 1996 proxy statements. The current article builds on Del Guercio et al. in three ways. First, I collect board characteristics for every year during a 13-year sample (1997–2014), allowing me to estimate the effects on independence in a much more exhaustive sample and within firm around changes to board composition. Second, I use an extensive record of employment backgrounds to account for the presence of gray directors. Gray directors, who are often classified as independent in proxy filings, are former employees or business partners of the fund and therefore have fundamentally different incentives from independent directors. By excluding gray directors from the measure, I report a more accurate representation of the true number of outside directors serving on the board. Third, the unique features of my data provide an opportunity to address endogeneity concerns in a way that prior studies have been unable to do.

In this article, I use the closed-end fund premium as a laboratory in which to test the impact of board independence, which is much more difficult to estimate in a broad sample of general corporations. Several studies use the unique aspects of closed-end funds in a similar manner. Pontiff (1996) uses a closed-end fund setting for analyzing mispricing arising from high trading costs. Barclay, Holderness, and Pontiff (1993) use funds to examine how agency costs affect firm value. Lee, Shleifer, and Thaler (1991) and Hwang (2011) use fund premiums to study investor sentiment. Similar to these researchers, I use the unique characteristics of closed-end funds to explore issues with broader implications.

This article contributes to the literature in several ways. Most important, it adds to the discussion on the value of board independence. Although a few studies

[1] See the 2013 Investor Alert at http://www.finra.org/investors/alerts/closed-end-fund-distributions-where-money-coming, and FINRA CEO Rick Ketchum's Regulatory and Examination Priorities Letter at https://www.finra.org/rules-guidance/communications-firms/annual-regulatory-and-examination-priorities-11113.

(Rosenstein and Wyatt (1990), Nguyen and Nielsen (2010), and Knyazeva et al. (2013)) document a positive relation between firm value and board independence, the overwhelming number of studies simply conclude that board independence is not a factor in determining firm value, or that it possibly plays a role but endogeneity problems are too severe to overcome. This article offers a simple, direct approach to showing that board independence increases firm value, providing consistent evidence in the cross section, through IV and propensity score matching approaches, and through an event study. This article further establishes the benefits to shareholders of an independent board. Although studies find evidence of independent boards acting in the interests of shareholders, the closed-end fund laboratory provides more direct measures than broader studies of general corporations. This article therefore provides greater insights into how decision making varies based on board composition, including decisions related to disclosure practices.

The rest of this article proceeds as follows: Section II discusses identifications concerns documented in the literature. Section III discusses the typical governance structure in closed-end funds. Section IV discusses the data. Section V tests the effect of board independence on firm value. Section VI considers how board independence aligns director decision making with shareholder interests. Section VII concludes.

II. Identification Concerns in the Literature

The literature acknowledges identification concerns surrounding the relation between board independence and firm value. These concerns typically arise through channels related to firm performance. This section discusses prior work on this topic and its relevance to the closed-end fund sample.

Hermalin and Weisbach (1988) are among the first to explore the value implications of board independence. They document a negative relation and attribute this to two endogenous factors: i) firms hold insiders responsible for poor performance and remove them from the board, replacing them with independent directors when there are no remaining CEO candidates inside the firm, and ii) following poor performance, shareholders place more independent directors on the board to improve the board's monitoring of the CEO. Hermalin and Weisbach (1998) model the latter phenomenon more formally in a bargaining framework between the CEO and the board. They note that the board's monitoring of the CEO will become more intense, forcing the CEO to accept more independent directors, following negative signals about the CEO's ability.

A second strand of the literature suggests that board independence endogenously increases through firms performing well and consequentially becoming larger and more complex. Larger firms give rise to more agency problems because the proportion of managerial ownership declines with firm size; this requires a greater outside monitoring presence from independent directors (Jensen and Meckling (1976), Lehn, Patro, and Zhao (2009), and Barclay and Smith (1995a), (1995b)). Similarly, firms become more diverse as they grow, requiring more independent directors to monitor the wider range of business activities (Klein (1998), Boone et al. (2007), and Coles et al. (2008)). Pfeffer (1972) shows that

complex firms have more outside contracting relationships, which may necessitate the appointment of outside directors to monitor and advise these contractual relationships (e.g., a political expert to advise outside government contracts). Whereas the Hermalin and Weisbach (1988), (1998) models suggest that performance may negatively bias the relation between firm value and board independence, this latter strand of literature suggests a bias in the opposite direction.

Many of these concerns are addressed, or at least partially mitigated, by characteristics of the closed-end fund sample. Relative to industrial corporations, managerial ownership is rare (only 4.3% of sample funds have any at all) and heavily regulated in closed-end funds; the related agency concerns should therefore not be a major factor. Unlike industrial corporations, funds do not become more complex or increase their lines of business as they grow; they typically stay invested in the same asset classes and pursue similar strategies throughout their life cycle. Funds do not have outside contracting relationships that require special advising. In sum, as a fund grows (whether resulting from performance or other factors), there is little about the business that will change to necessitate the appointment of additional independent directors.

Because shareholders of investment funds place a large emphasis on performance, the concerns raised by Hermalin and Weisbach (1988), (1998) are relevant to this article and imply that a cross-sectional test negatively biases the relation between firm value and board independence. Fortunately, in the same cross-sectional test, the closed-end fund sample does present a key advantage over broader studies in that a fund's NAV return, which is the primary means by which a manager is evaluated, provides a direct and unbiased measure of the fund manager's performance and resulting bargaining power.

Finally, to the extent that concerns about endogeneity remain, the closed-end fund sample presents several opportunities to formally address these concerns, which I discuss in detail in later sections.

III. Overview of Closed-End Fund Governance

The responsibilities of the board of directors in a closed-end fund are largely identical to those of any other corporation. Specific duties include approval of financial statements, negotiation of portfolio management fees, oversight of share issuances and dividend distributions, and changes to bylaws, among others. The board is also structured similarly and subject to all of the same regulations as that of a publicly traded industrial corporation. They have 3–15 directors with a mixture of independent and interested (inside) directors. Interested directors may be an employee of the fund family or of the investment advisor. Funds are required by the 1940 Act to have at least 40% independent directors, although funds may be subject to additional requirements depending on the rules of the exchange they are traded on. Funds also often appoint gray directors, who are former employees or business partners of the fund and can legally be classified as interested or independent, depending on the amount of time passed since compensation most recently took place.

There are a few differences between fund boards and industrial corporation boards. First, directors in closed-end funds do not have authority to fire the CEO

(or portfolio manager of the fund). This individual is employed by the investment advisor, a separate legal entity from the fund. The board does have authority to represent shareholder interests in negotiating the contract with the investment advisor, however. For this reason, the literature (Del Guercio et al. (2003)) uses expense ratios as a measure of board effectiveness. Another key difference is that directors in closed-end funds often oversee multiple funds offered by a given family. Because many families may offer funds with highly similar investment strategies (e.g., Blackrock currently has 5 funds that invest in California municipal bonds), aligning the boards that oversee these funds reduces redundant tasks and improves efficiency of board meetings.

IV. Data and Summary Statistics

I start with the list of funds used in Souther (2016), (2018). This list consists of all funds in existence between 1997 and 2011 for which sufficient documentation was found to determine the fund's use of takeover defenses. It also includes board characteristics, including board size, co-option, and independence, along with an employment history for every director. I then extend this list to include funds through 2014 following the same methods outlined in this prior work. The final sample contains 682 funds. Directors are classified as inside, gray, or independent. The gray director classification includes directors that are retired employees of the fund family or advisor, relatives of executives, or other directors with disclosed conflicts of interest, following Weisbach (1988) and Shivdasani and Yermack (1999).[2] I focus only on the directors classified as independent. The key variable of interest is the number of independent directors expressed as a percentage of the total number of directors. Gray directors are thus treated as equivalent to inside directors.

This data set is then combined with fund characteristics from several sources. Fund premiums, expense ratios, leverage, age, assets, style classifications, and family characteristics are from Morningstar Direct. Insider ownership is taken from proxy statements and includes both direct and indirect manager and director ownership of shares. Institutional holdings are also taken from the proxy statements and reflect any shareholder with 5% or more ownership. The variable FRIENDLY_BLOCKHOLDINGS is based on a classification of these institutional holdings. Owners are defined as friendly if there is no evidence of hostility toward management, as defined by statements on 13D filings, news searches, and voting proposals. This classification is based on Barclay et al. (1993), who use the measure to show that premiums are lower when manager-friendly blockholders own a higher percentage of shares outstanding.

[2] According to Section 2(a)(19) of the 1940 Act, an independent director must be an individual who is i) not employed by the fund, ii) not an immediate family member of a fund employee, iii) unaffiliated with any fund advisor or underwriter, iv) has not acted as legal counsel within the last 2 years, v) has not executed transactions or loaned money to the fund within the past 6 months, and vi) has not had a business or professional relationship with the fund within the last 2 years. The definition used in this article is more stringent and follows the corporate governance literature. The primary differences between the measures are that this article: i) considers all former employees as gray, regardless of the time since termination of employment, and ii) treats any director with a consulting relationship as gray.

Table 1 describes the sample. The table is broken down by fund style. There are five styles as defined by Morningstar. Allocation refers to funds that strategically allocate assets across multiple asset classes. Convertibles primarily invest in convertible bonds. Equity funds invest in equity securities. Fixed-income funds invest primarily in non-tax-advantaged bonds. Tax-preferred funds invest in tax-advantaged bonds. The tax-preferred funds tend to be dominated by large fund families, several of which issue a series of state-specific municipal bond funds.

Fund premiums vary across categories, with an average 3.39% discount for the full sample. Equity and allocation funds have average premiums of approximately −6%, whereas fixed-income and tax-preferred funds have average premiums of approximately −2.2%. NET_EXPENSE_RATIO, which reflects the expense ratio net of any waivers, also varies greatly across fund categories. Because of the substantial variation in key variables across the style categories, I include fund category fixed effects in each regression. All variables are defined in the Appendix.

BOARD_INDEPENDENCE, the primary variable of interest in this article, has little variation across fund categories. The full-sample average is 82.76% with a standard deviation of 8.00%, with the various style categories all within the

TABLE 1
Summary Statistics

Table 1 describes the sample. Sample means are listed in the columns, with standard deviations in parentheses. The panel includes fund-years from 1997 to 2014. The fund style categories correspond to Morningstar classifications. BOARD_INDEPENDENCE is based on data collected from proxy statements and reflects nonaffiliated outside directors. TOTAL_ASSETS represents the total dollar amount of assets under the fund's management. FRIENDLY_BLOCKHOLDINGS estimates management-friendly shareholders based on the classification of Barclay et al. (1993). TAKEOVER_DEFENSE_INDEX uses data from Souther (2016). The variables are defined in the Appendix.

Variable	Full Sample	Allocation	Convertibles	Equity	Fixed Income	Tax Preferred
BOARD_INDEPENDENCE	82.76% (8.00%)	81.52% (11.52%)	79.95% (12.09%)	79.97% (9.51%)	82.20% (8.01%)	84.92% (5.42%)
BOARD_SIZE	8.62 (2.48)	7.69 (2.39)	7.47 (2.07)	7.97 (2.60)	8.39 (2.62)	9.26 (2.18)
PREMIUM	−3.35% (9.02%)	−5.94% (11.42%)	−2.81% (8.86%)	−5.93% (12.45%)	−2.19% (8.46%)	−2.17% (5.61%)
NET_EXPENSE_RATIO	1.31 (0.59)	1.57 (0.67)	1.41 (0.36)	1.55 (0.74)	1.35 (0.61)	1.12 (0.37)
TOTAL_ASSETS	$336.14M ($393.80M)	$457.06M ($487.82M)	$373.67M ($320.10M)	$434.39M ($520.94M)	$375.31M ($394.77M)	$246.56M ($253.84M)
FUND_AGE	10.77 (8.46)	6.68 (4.71)	13.04 (10.97)	10.99 (11.88)	10.08 (7.78)	11.25 (6.47)
LEVERAGE	25.90% (11.30%)	23.76% (9.90%)	26.88% (9.15%)	17.25% (11.73%)	23.62% (10.38%)	29.18% (10.21%)
FAMILY_SIZE	51.11 (49.59)	30.24 (45.64)	8.40 (8.13)	20.60 (36.04)	33.45 (41.24)	81.65 (43.67)
TURNOVER	5.38% (3.44%)	7.06% (2.59%)	5.28% (2.13%)	7.54% (4.38%)	6.55% (2.90%)	3.35% (1.22%)
INSIDER_OWNERSHIP	10.91% (14.57%)	8.00% (8.49%)	11.24% (2.39%)	11.98% (16.03%)	5.44% (7.07%)	0.00 (0.00)
FRIENDLY_BLOCKHOLDINGS	11.22% (7.76%)	11.63% (6.62%)	8.25% (2.33%)	12.75% (8.48%)	8.50% (5.07%)	12.08% (10.68%)
TAKEOVER_DEFENSE_INDEX	4.63 (1.17)	5.49 (0.83)	5.21 (0.90)	5.03 (1.26)	4.62 (1.31)	4.31 (0.93)
No. of funds	682	30	10	211	176	255
Fund-year obs.	7,679	287	131	2,084	1,715	3,462

range of approximately 80%–85%. The 25th and 75th percentiles of board independence (untabulated) are 75% and 88.89%, respectively. The average board has 8.62 directors. There is some variation across fund categories, with the allocation, convertibles, and equity categories averaging fewer than 8 directors, and the tax-preferred category averaging more than 9. The TAKEOVER_DEFENSE_INDEX is simply a count of the number of takeover defenses in place, similar to the Gompers, Ishii, and Metrick (2003) GINDEX and the Bebchuk, Cohen, and Ferrell (2009) EINDEX; allocation firms have the most takeover defenses, whereas tax-preferred funds have the fewest. Table 2 documents the historical trends in board independence. Across all fund categories, board independence steadily rises throughout the sample.

TABLE 2
Board Independence by Year and Fund Category

Table 2 documents average board independence by year and fund category across the sample period.

Year	Full Sample	Allocation	Convertibles	Equity	Fixed Income	Tax Preferred
1997	75.19%	53.67%	66.24%	74.97%	72.85%	76.81%
1998	75.51%	54.44%	66.24%	74.48%	74.74%	77.33%
1999	77.91%	54.44%	72.22%	74.13%	75.66%	81.32%
2000	78.16%	57.76%	72.22%	74.96%	75.61%	81.46%
2001	79.10%	61.33%	74.79%	74.66%	77.29%	82.03%
2002	80.66%	67.78%	74.11%	76.06%	80.14%	82.56%
2003	80.90%	76.64%	80.50%	77.30%	80.28%	82.51%
2004	81.62%	78.07%	80.50%	77.88%	80.96%	83.96%
2005	82.90%	80.70%	82.34%	80.11%	81.69%	85.43%
2006	83.26%	80.95%	85.91%	80.28%	82.58%	85.72%
2007	83.14%	82.85%	81.83%	80.53%	83.16%	85.26%
2008	84.34%	83.23%	82.74%	81.32%	83.90%	87.13%
2009	84.33%	83.51%	82.74%	80.89%	84.02%	87.26%
2010	84.90%	84.23%	81.68%	81.98%	84.80%	87.25%
2011	85.40%	85.03%	84.62%	82.36%	84.91%	88.03%
2012	85.52%	85.51%	85.14%	82.61%	84.98%	88.15%
2013	85.83%	85.73%	85.33%	82.86%	85.32%	88.35%
2014	86.02%	85.88%	85.51%	83.04%	85.58%	88.50%

V. Board Independence and Firm Value

The primary question in this article is whether board independence affects firm value. The closed-end fund premium allows this question to be tested in a simple, direct manner, ignoring any concerns over asset valuation or growth opportunities. I begin with a simple OLS regression of annual fund premiums (the average of monthly premiums across the fiscal year) onto BOARD_INDEPENDENCE and a standard set of controls from the closed-end fund literature, along with fund category and year fixed effects. As shown by Malkiel (1977) and Pontiff (1995), closed-end fund premiums have a strong common component and exhibit high autocorrelation. I therefore cluster standard errors by fund and year for all panel regressions throughout this article.

Table 3 presents the results. The dependent variable is the fund premium in percentage (not decimal) terms. Column 1 reports the base model. Of the controls, ln(ASSETS), FRIENDLY_BLOCKHOLDINGS, INSIDER_OWNERSHIP, and TAKEOVER_DEFENSE_INDEX all have a negative and significant effect on premiums. LEVERAGE and the proxy for liquidity, TURNOVER, have

TABLE 3
Board Independence and Fund Premiums

Table 3 reports ordinary least squares (OLS) regressions examining the relation between board independence and closed-end fund premiums. The dependent variable in each test is the average annual closed-end fund premium, based on an average of monthly observations. The variables are defined in the Appendix. Standard errors are clustered by year and fund, following Petersen (2009). Each column includes fund category and year fixed effects. *t*-statistics are in square brackets. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. The number of observations is 7,679.

Variable	1	2
BOARD_INDEPENDENCE	0.053 [2.03]**	0.040 [1.78]*
CO-OPTED_DIRECTORS	−0.001 [−0.44]	0.002 [0.67]
BOARD_SIZE	−0.378 [−3.66]***	0.026 [0.17]
ln(FUND_AGE)	−0.485 [−1.24]	−0.285 [−1.07]
ln(FAMILY_SIZE)	0.074 [0.41]	−2.279 [−2.78]***
NET_EXPENSE_RATIO	0.121 [0.28]	0.186 [0.44]
ONE_YEAR_NAV_RETURN	0.0524 [0.81]	0.029 [0.52]
LEVERAGE	0.076 [3.52]***	0.028 [1.90]*
ln(ASSETS)	−0.720 [−2.29]**	−1.016 [−4.29]***
TURNOVER	0.411 [2.68]***	0.366 [3.77]***
FRIENDLY_BLOCKHOLDINGS	−0.241 [−4.40]***	−0.176 [−3.62]***
INSIDER_OWNERSHIP	−0.211 [−3.72]***	−0.272 [−4.24]***
TAKEOVER_DEFENSE_INDEX	−0.888 [−3.17]***	−0.394 [−1.56]
Fund family fixed effects	No	Yes
Adj. R^2	0.166	0.304

positive and significant effects. The signs of these control variables are broadly consistent with those reported by prior studies, including Del Guercio et al. (2003), Cherkes, Sagi, and Stanton (2009), and Elton, Gruber, Blake, and Shachar (2013). I also include a control for board size. The negative and significant coefficient on BOARD_SIZE implies that each additional director is related to a decrease in premiums of 37.75 bps. This effect is consistent with evidence from Yermack (1996). The variable of interest, BOARD_INDEPENDENCE, has a positive effect on premiums. The coefficient of 0.0529 implies that a 10% increase in board independence corresponds to a statistically significant 52.9 bps increase in fund premiums.[3]

Column 2 of Table 3 uses the same base model but adds fund family fixed effects to account for any family-level influence on the board or on fund premiums. The effect of BOARD_INDEPENDENCE implies that a 10% increase in

[3]I describe the economic significance of results in terms of a 10% increase in board independence. Although this is a round number that provides easy interpretation of a regression coefficient, it is similar in magnitude to the average firm in the sample (8.62 directors) replacing one inside director with an independent director.

board independence is associated with higher fund values by 40 bps, similar in magnitude to the effect from column 1.

Including fund family fixed effects as in column 2 of Table 3 should alleviate some concerns about potential alternative explanations, but the typical endogeneity concern in an OLS regression relates to funds appointing directors based on current market conditions. The Hermalin and Weisbach (1998), (2003) endogeneity arguments discussed extensively in prior work primarily explain an observed negative correlation between board independence and firm value; firms are more likely to appoint more independent directors when performance is poor. In Table 3, I use logit models to test whether fund performance affects the likelihood of the fund increasing its level of independence. The dependent variable, based on a careful analysis of any changes to board composition described in proxy statements, equals 1 if i) a new independent director is appointed to the board that is not replacing an existing independent director, ii) an inside or gray director departs the board without a replacement (the fund usually notes that board composition is changing in these cases), or iii) an inside or gray director is replaced with an independent director. I regress this variable onto measures of performance (fund premiums and category-adjusted NAV returns), along with prior-year board independence and board size.

The negative coefficient on PREMIUM in column 1 of Table 4 confirms that funds are more likely to increase board independence when the market's valuation of the fund is low. In column 2, the negative coefficient on ADJUSTED_NAV_RETURN indicates that funds are more likely to increase board independence when NAV performance lags that of peers in the same fund category. The control variables in both models suggest that funds are less likely to increase board independence if independence is already high, and they are less likely to increase board independence if they already have a large board.

In the context of the positive effect of board independence observed in Table 3, the changes to board structure following poor performance raise endogeneity concerns about the true nature between the 2 variables. Another potential

TABLE 4

Influence of Performance on Increasing Board Independence

Table 4 uses logit models to determine the likelihood of a board increasing its proportion of independent directors. The dependent variable is equal to 1 in fund-years where board independence increases. This includes i) a new independent director being added to the board and not replacing an existing independent director, ii) an existing inside or gray director stepping down from the board without a replacement, and iii) an inside or gray director being replaced by an independent director. The dependent variable is 0 in all other years. ADJUSTED_NAV_RETURN is the fund's NAV return minus the category average NAV return. The variables are defined in the Appendix. Standard errors are clustered by year and fund, following Petersen (2009). *t*-statistics are in square brackets. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. The number of observations is 7,679.

Variable	1	2
PREMIUM	−0.013 [−3.39]***	
ADJUSTED_NAV_RETURN		−0.136 [−1.86]*
BOARD_INDEPENDENCE	−0.007 [−1.66]*	−0.009 [−2.21]**
BOARD_SIZE	−0.076 [−6.20]***	−0.084 [−6.73]***
Pseudo-R^2	0.017	0.013

concern with the Table 3 panel regressions is the high autocorrelation of fund premiums (Pontiff (1995)). Although fund-level clustering addresses this issue in the standard errors, point estimates may still be biased in these OLS models. I next use a variety of techniques to address these concerns.

I first use the 2001 amendments to the 1940 Act as a source of exogenous variation in board independence. These amendments make two key changes to the 1940 Act's regulations on board independence. First, the amendments increase minimum board independence from 40% to 50%. Second, the amendments require that only independent directors be involved in the nomination of new independent directors. Although some funds did have to increase the percentage of independent directors on their boards in response to these amendments, more than 95% of funds in the sample already reported board independence in compliance with this new 50% minimum. A much larger proportion of funds (38%) were affected by the second rule, requiring only independent directors to be involved in the nomination of new independent directors. Although this rule pertaining to nominations did not increase the absolute level of board independence, it did increase the influence that independent directors have on the fund.

I identify three key dates leading up to the 1940 Act amendments: i) Mar. 22, 1999, when SEC Chairman Arthur Levitt first announced the SEC's intent to change the rules pertaining to independent directors; ii) Oct. 13, 1999, when the formal proposal was released by the SEC; and iii) Jan. 16, 2001, when the SEC announced the implementation of the amendments with an effective date 1 month later. For each of these dates and their corresponding announcements, I examine the fund premiums observed at the end of the week before the announcement and the end of the week during which the announcement was made. To measure the effects of the announcements, I use a difference-in-differences regression with two variables of interest: AFFECTED equals 1 for firms affected by either component of the amendments,[4] and POST_EVENT equals 1 for premiums observed following the announcement. An interaction term, AFFECTED × POST_EVENT, measures the impact of the announcement on the premiums firms affected by the announcement. A positive effect of this interaction term provides evidence that firm value increases when independent directors become more influential.

The test is reported in Table 5. Panel A details the three focal dates, and Panel B presents the results. The column labeled "Column" in Panel A corresponds to the column numbers in Panel B. In column 1, which examines the Mar. 22, 1999 announcement, I find that firms affected by the amendments trade at significantly lower premiums. The interaction term has a positive and significant effect, indicating a post-announcement increase in firm value for firms that would be affected by the changes. The coefficient suggests a 21 bps increase in fund premiums for these firms. In column 2, which examines the effect of the Oct. 13, 1999 proposal, finds no significant effect of the interaction term. Although this was a significant date because of the formal proposal of the rules, it provides no additional information beyond what Chairman Levitt announced in March; the reaction to these

[4]This variable is observed as of the specified announcement date. For example, if a fund has 40% board independence as of Mar. 22, 1999, and then increases to 50% before Oct. 13, 1999, AFFECTED would only take a value of 1 for the first date.

TABLE 5
Effects of 1940 Act Amendments

Table 5 uses a difference-in-differences method to examine the impact of amendments to the Investment Company Act of 1940 (1940 Act). The amendments require funds to appoint at least 50% independent directors and have a nominating committee composed entirely of independent directors. The key dates are described in Panel A. The column labeled "Column" corresponds to the column numbers in Panel B. For example, the Mar. 22, 1999 announcement is tested in column 1 of Panel B. The dependent variable for each test is the weekly fund premium observed at the end of the week, and the sample consists of premiums observed during weeks $t-1$ and t, where week t is the week during which the event in Panel A occurs. AFFECTED equals 1 for all funds affected by the legislation, observed as of the specified date. POST_EVENT equals 1 for the observation following the announcement date. In addition to the tabulated coefficients, each specification includes fund category fixed effects and the full range of control variables reported in Table 3. t-statistics are in square brackets. * and ** denote significance at the 10% and 5% levels, respectively.

Panel A. Key Dates

Column	Date	Description
1	Mar. 22, 1999	U.S. Securities and Exchange Commission (SEC) Chairman Arthur Levittannounces SEC's intention to propose new rules for independent directors in investment companies.
2	Oct. 13, 1999	SEC formally proposes the amendments to the 1940 Act and opensthe changes for comment.
3	Jan. 16, 2001	SEC announces the implementation of the rules with an effective date of Feb. 15, 2001.

Panel B. Difference-in-Differences

Variable	1	2	3
AFFECTED	−0.138 [−1.90]*	−0.172 [−2.10]**	−0.107 [−1.53]
POST_EVENT	0.057 [0.64]	0.035 [0.48]	−0.003 [−0.10]
AFFECTED × POST_EVENT	0.214 [2.01]**	0.047 [0.67]	0.142 [1.70]*
Additional controls	Yes	Yes	Yes
No. of obs.	345	342	336
Adj. R^2	0.149	0.132	0.166

changes had likely already occurred in column 1. In column 3, which examines the Jan. 16, 2001 announcement of the amendments' implementation, I again find a positive and significant effect on the interaction. Overall, the positive effect of the announcements for affected firms provides evidence that firm value rises when independent directors become more powerful.

In addition to addressing endogeneity concerns, the Table 5 specification addresses concerns related to the autocorrelation of fund premiums (Pontiff (1995)), which may reduce the precision of OLS point estimates. The difference-in-differences framework takes advantage of the relative stationarity of fund premiums; without large volatility in premiums (especially during the small intervals used in this test), the effect of an exogenous change to board independence becomes easier to measure. This test should therefore provide a more reliable estimate of the actual economic impact of increased board independence than a panel regression.

I next use a 2-stage least squares (2SLS) IV approach to address endogeneity concerns. An instrument must be related to board independence but unaffected by fund performance. Following Souther (2018), who examines social connections between board members, I use board composition at the time of the IPO of the first fund issued by the fund family. This instrument takes advantage of several unique aspects of closed-end funds. First, unlike industrial corporations, a fund does not have an established record of performance as a private company before the IPO.

Board independence observed at the time of the IPO therefore cannot be affected by performance. However, board independence observed at this time should be related to independence in subsequent years because board members serve terms of several years and upon departure are most often replaced with a director of the same status. Furthermore, the overlap in directors across funds within a fund family ensures that sister funds generally have similar board compositions.

Many of the IPO-year independence observations occur outside of the sample used in my empirical tests. Though some of the observations come from filings in the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database, others come from historical annual reports on fund websites or by directly contacting fund management companies to request historical financial statements. I am unable to acquire IPO-year data for the entire sample, so the sample size declines relative to prior tests.

Column 1 of Table 6 contains the first-stage model, which regresses BOARD_INDEPENDENCE onto FAMILY_IPO_INDEPENDENCE and the full

TABLE 6

Family Independence at IPO as Instrumental Variable

Table 6 presents 2-stage least squares regressions examining the relation between board independence and fund premiums. The first-stage model is reported in column 1, where the dependent variable is the fund's board independence and FAMILY_IPO_INDEPENDENCE refers to the initial public offering (IPO)–year board independence of the first fund in the fund family. Column 2 reports the second-stage model, where the dependent variable is the fund premium, and INSTRUMENTED_INDEPENDENCE refers to the predicted values from the first-stage model. The variables are defined in the Appendix. Standard errors are clustered by year and fund, following Petersen (2009). Each column includes fund category and year fixed effects. *t*-statistics are in square brackets. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. The number of observations is 4,061.

	First Stage	Second Stage
Variable	1	2
INSTRUMENTED_INDEPENDENCE		0.118 [2.66]***
CO-OPTED_DIRECTORS	0.005 [1.56]	0.002 [0.69]
BOARD_SIZE	0.034 [0.43]	−0.348 [−3.34]***
ln(FUND_AGE)	−0.074 [−0.28]	−0.354 [−0.93]
ln(FAMILY_SIZE)	0.188 [0.99]	−0.475 [−2.25]**
NET_EXPENSE_RATIO	−0.219 [−0.61]	−0.190 [−0.45]
ONE_YEAR_NAV_RETURN	0.045 [1.61]	0.023 [0.46]
LEVERAGE	−0.029 [−2.57]**	0.057 [3.41]***
ln(ASSETS)	0.261 [1.52]	−0.871 [−3.14]***
TURNOVER	−0.040 [−0.64]	0.469 [3.15]***
FRIENDLY_BLOCKHOLDINGS	−0.068 [−1.91]*	−0.299 [−5.02]***
INSIDER_OWNERSHIP	−0.283 [−6.57]***	−0.222 [−3.39]***
TAKEOVER_DEFENSE_INDEX	−0.728 [−3.11]***	−0.618 [−1.84]*
FAMILY_IPO_INDEPENDENCE	0.697 [5.62]***	
Adj. R^2	0.5574	0.158

range of controls. The instrument, FAMILY_IPO_INDEPENDENCE, is a significant predictor of board independence in subsequent years. I also note the significance of TAKEOVER_DEFENSE_INDEX, which suggests that an additional takeover defense is associated with a 0.728% decline in board independence. There are few studies on the relation between these 2 variables. However, Field and Karpoff (2002) find a similar effect in a specification for takeover defenses of IPO firms, whereas Mallette and Fowler (1992) find no relation between board independence and poison pill adoption.

In the second-stage model in column 2 of Table 6, the instrumented board independence is positively and significantly related to fund premiums. The coefficient of 0.118 suggests that a 10% change in board independence is related to a 118 bps increase in firm value. This point estimate is notably larger than those observed in the models in Table 3, suggesting that the endogeneity bias may understate the true effect of board independence. A Hausman test (p-value = 0.022) confirms the 2 coefficients (OLS vs. 2SLS) are statistically different and that the OLS is indeed endogenous.

I next use propensity score matching to provide additional evidence of the exact nature of the independence–value relation. The test aims to match funds in the bottom quartile of board independence (LOW_INDEPENDENCE) to similar funds in the top quartile of board independence (HIGH_INDEPENDENCE) on the basis of fund investment strategies and recent portfolio performance. The measures of investment strategies rely on data collected from fund holdings reported in the annual report. I collect the 10 largest holdings for each fund. For equity funds, I merge the holdings with the Center for Research in Security Prices (CRSP) and Compustat and place each fund into deciles based on the weighted average market capitalization and the weighted average book-to-market of the top 10 holdings. For debt funds (in the fixed-income and tax-preferred categories), I record the weighted average maturity and weighted average bond rating (where 1 = AAA, 2 = AA+, etc.) of the top 10 holdings. I do not include allocation or convertible funds in the match process because there are not enough funds in these categories to find a close match.

I propensity score match each LOW_INDEPENDENCE fund to a HIGH_INDEPENDENCE fund within the same fund category and year. All funds, regardless of category, are matched on TOTAL_ASSETS, FUND_AGE, LEVERAGE, and NAV_PERFORMANCE. Within the equity category, I also match on SIZE_DECILE and BOOK_TO_MARKET_DECILE based on the holdings data. Within the fixed-income and tax-preferred categories, I also match on WEIGHTED_AVERAGE_MATURITY and WEIGHTED_AVERAGE_RATING based on the holdings data. The first-stage probit model has a dependent variable equal to 1 if the fund is in the bottom quartile of board independence, and I match each of these funds to the closest propensity score match in the top quartile of board independence within the same fund category and year, with replacement. Including only the top and bottom quartiles ensures that there is adequate variation in board independence.

Panel A of Table 7 contains the 2 unmatched samples. There are significant differences in TOTAL_ASSETS, FUND_AGE, LEVERAGE, NAV_PERFORMANCE, SIZE_DECILE, and WEIGHTED_AVERAGE_RATING

TABLE 7
Propensity Score Matched Sample

Table 7 uses a propensity score matching technique to match funds in the bottom quartile of board independence (LOW_INDEPENDENCE) to boards in the top quartile of board independence (HIGH_INDEPENDENCE) on the basis of investment styles. I use one-to-one matching with replacement with matches only within a fund's category-year group. Holdings data collected from annual reports provide additional classification of investment styles. For equity funds, I merge holdings with Center for Research in Security Prices (CRSP) and Compustat to find the average market capitalization and book-to-market ratio across the top 10 holdings. I then place funds into deciles based on the weighted average market capitalization and book-to-market ratio, with the weights determined by the dollar value of the position as a percentage of the total dollar value of the top 10 holdings. For fixed-income and tax-preferred funds, I record the weighted average maturity and bond rating (where 1 = AAA, 2 = AA+, etc.) of the top 10 holdings. All funds are matched on assets, age, leverage, and lagged net asset value performance. Within the equity category, I also match funds on size and book-to-market deciles based on the top 10 holdings. In the fixed-income and tax-preferred categories, I also match funds based on weighted average maturity and bond rating of the top 10 holdings. The dependent variable in Panel D is the fund premium, and the specification uses the same controls as in Table 3. TOTAL_ASSETS represents the total dollar amount of assets managed by the fund. NAV_PERFORMANCE is the fund's NAV return for the prior year. EQUITY_FUNDS, FIXED_INCOME_FUNDS, and TAX_PREFERRED_FUNDS represent the total number of funds in each of the corresponding Morningstar style categories. OLS stands for ordinary least squares. The variables are defined in the Appendix. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Variable	LOW_ INDEPENDENCE	HIGH_ INDEPENDENCE	Difference in Means
Panel A. Unmatched Sample			
TOTAL_ASSETS	$315.41M	$343.84M	−$28.43M**
FUND_AGE	8.85	9.48	−0.63*
LEVERAGE	15.06	20.61	−5.56***
SIZE_DECILE (equity only)	5.61	5.03	0.58*
BOOK_TO_MARKET_DECILE (equity only)	5.43	5.11	0.32
WEIGHTED_AVERAGE_MATURITY (fixed income/tax preferred)	10.11	10.55	−0.44
WEIGHTED_AVERAGE_RATING (fixed income/tax preferred)	8.41	7.75	0.66*
NAV_PERFORMANCE [$t-1$]	9.27%	4.41%	4.86%*
EQUITY_FUNDS	35.63%	25.23%	10.40%***
FIXED_INCOME_FUNDS	28.11%	23.14%	4.97%***
TAX_PREFERRED_FUNDS	36.26%	51.64%	−15.38%***
BOARD_INDEPENDENCE	70.96%	90.34%	19.18***
N	2,048	2,167	
Panel B. Matched Sample			
TOTAL_ASSETS	$315.42M	$321.64M	−$6.22M
FUND_AGE	8.85	9.01	−0.16
LEVERAGE	15.06	15.15	−0.09
SIZE_DECILE (equity only)	5.61	5.28	0.33
BOOK_TO_MARKET_DECILE (equity only)	5.43	5.20	0.23
WEIGHTED_AVERAGE_MATURITY (fixed income/tax preferred)	10.11	10.30	−0.19
WEIGHTED_AVERAGE_RATING (fixed income/tax preferred)	8.41	8.20	0.21
NAV_PERFORMANCE [$t-1$]	9.27%	8.91%	0.36%
EQUITY_FUNDS	35.63%	35.63%	—
FIXED_INCOME_FUNDS	28.11%	28.11%	—
TAX_PREFERRED_FUNDS	36.26%	36.26%	—
BOARD_INDEPENDENCE	70.96%	89.60%	14.64***
N	2,048	2,048	
Panel C. Univariate Treatment Effect			
PREMIUM	−4.12%	−3.04%	1.58%**
Panel D. OLS Estimate of Treatment Effect			
		1	
BOARD_INDEPENDENCE		0.110 [2.49]**	
Other controls		Yes	
No. of obs.		4.788	
Adj. R^2		0.166	

between the bottom quartile (LOW_INDEPENDENCE) and the top quartile (HIGH_INDEPENDENCE) samples. I also note the differences in observed frequency of fund categories between the 2 quartiles, with tax-preferred funds

appearing much more frequently in the top quartile of board independence. This highlights the importance of within-category matching.

Panel B of Table 7 describes the matched sample. The within-category matching process provides a quality match; there are no significant differences in fund characteristics between the LOW_INDEPENDENCE funds and the matched sample. Panel C tests the univariate difference in fund premiums between the two samples. The LOW_INDEPENDENCE funds, where board independence averages 70.96%, trade at a premium 158 bps lower than the HIGH_INDEPENDENCE funds, where board independence averages 89.60%. Panel D runs a regression on the matched sample with the same controls as in column 1 of Table 2. The coefficient of 0.1097 is of similar magnitude to the IV estimate in Table 4, providing further indication of the positive relation between board independence and firm value, and of the underestimation of OLS.

Finally, I employ an event study to rule out alternative explanations. This approach is also found in Rosenstein and Wyatt (1990), examining the effect of independent director appointments on stock prices, and Nguyen and Nielsen (2010), testing the effect of independent director sudden deaths on stock prices. Both of these studies are unilateral. The Rosenstein and Wyatt study considers only new independent directors, and the Nguyen and Nielsen study considers only removal (through death) of an existing independent director. I design an event study that considers both positive and negative changes to board independence.

Because the focus of this article is on overall board independence, it is important to exclude cases where one independent director steps down only to be replaced by a new independent director; although there is turnover in this case, overall board independence remains unchanged. I look to language in proxy statements to identify cases where either i) a new director is added to the board (inside or independent, as either would change the percent independence) and is not a replacement for an existing director, ii) an existing director steps down from the board and is not replaced, or iii) an existing director is replaced by a director of a different independent/inside status. Generally, the language in the proxy is clear, as it explicitly states who is stepping down and who is running for reelection. I ignore sudden changes to board composition caused by death or some other unknown event as long as the following proxy names a replacement of the same status. In these cases, the market likely anticipates a replacement of the same independent/interested status being added to the board. This results in changes to board composition during 1,741 fund-years.

In setting up the test, I establish the fund premium as of the end of the month before the proxy mailing (where the announcement of the change is first made) as the baseline, defined as PREMIUM$[t-1]$. I then compare this to the premium at four time points: i) end of the month during which the proxy is delivered; ii) end of the month after the proxy is delivered, iii) end of the month of the shareholder meeting, where the new slate of directors is elected; and iv) end of the month after the shareholder meeting. I use a regression framework; the dependent variable is the premium in each of the 4 months following the change, and I include the $t-1$ premium as a control in each regression. The other variables in the regression are CHANGE_IN_BOARD_INDEPENDENCE, the variable of interest, which measures the percent change in board independence following the event,

and CHANGE_IN_BOARD_SIZE, controlling for the change in the number of directors, which could also affect fund values.

Table 8 presents the results for the event study. Column 1 tests the change between the month before the proxy mailing and the end of the month during the mailing. The parameter estimate on CHANGE_IN_BOARD_INDEPENDENCE is positive and significant. The coefficient of 0.0469 implies a 10% increase in independence results in an average increase of 47 bps to fund premiums as of the end of the proxy month. The effect is slightly larger in column 2, which tests premiums as of the end of the month following the proxy mailing. Column 3 tests premiums at the end of the month of the shareholder meeting. The parameter estimate is again positive and significant. The coefficient of 0.0574 implies a 10% increase in independence relates to a 57 bps increase in premiums. This increases to 0.0645 in the month following the meeting in column 4. These estimated effects are smaller than the IV and propensity score models. However, it is important to note that these estimates are on a much smaller sample and examining a specific event. The key takeaway is consistent with these models; board independence increases firm value.

TABLE 8
Event Study

Table 8 considers the effects of changes to board independence on closed-end fund premiums. In column 1, the dependent variable is the premium observed at the end of the month during which the proxy was mailed to shareholders. In column 2, the dependent variable is the premium at the end of the month after the proxy was mailed. In column 3, the dependent variable is the premium observed at the end of the month during which the shareholder meeting (and election of directors) occurred. In column 4, the dependent variable is the premium at the end of the month following the shareholder meeting. In each specification, controls for the premium at $t-1$, the month before the proxy mailing, are included. The sample consists of cases where board independence changes. This includes i) a new director being added to the board, ii) an existing director stepping down from the board without a replacement, and iii) an existing director being replaced by a director of a different independent/interested status. CHANGE_IN_BOARD_INDEPENDENCE and CHANGE_IN_BOARD_SIZE represent the changes in percent board independence and number of directors, respectively. Standard errors are clustered by year and fund, following Petersen (2009). t-statistics are in square brackets. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. The number of observations is 1,741.

	Proxy	Proxy + 1	Meeting	Meeting + 1
Variable	1	2	3	4
CHANGE_IN_BOARD_INDEPENDENCE	0.047 [1.85]*	0.061 [2.01]**	0.057 [1.95]*	0.065 [2.07]**
CHANGE_IN_BOARD_SIZE	0.021 [0.44]	0.022 [0.31]	0.106 [0.87]	0.114 [1.02]
PREMIUM [$t-1$]	0.961 [36.48]***	0.950 [29.50]***	0.850 [21.83]***	0.847 [18.22]***
Adj. R^2	0.843	0.780	0.6388	0.501

VI. Board Independence and Shareholder Interests

Previous research documents the positive effects of board independence, generally suggesting that having a higher proportion of independent directors results in firm monitoring that is better aligned with shareholder interests. Table 9 presents tests of board monitoring quality. In Panel A, I test whether board independence relates to fund expense ratios. Because expense ratios vary within fund category and across time, I include a control for the average expense ratio of funds within the fund style category (excluding the focal fund). Both specifications in Panel A (with and without family fixed effects) report a negative relation

between board independence and fund expense ratios. This finding is consistent with Del Guercio et al. (2003) and Tufano and Sevick (1997). The point estimates suggest that a 10% increase in board independence is related to a 5–7 bps decline in expense ratios.

Panel B of Table 9 tests whether independent directors are better monitors of fund disclosure practices. I test this hypothesis using 2 difference measures of disclosure quality. First, I look to cases of SEC enforcement for financial misrepresentation. I use the SEC's enforcement division website to identify these cases, which are used in prior studies including Karpoff, Lee, and Martin (2008a), (2008b), Kedia and Rajgopal (2011), and others. Following the literature, I assign a value of 1 to a dependent variable if an accounting-related violation occurred during that fund-year observation. In some cases, the violation occurs across

TABLE 9
Board Decisions

Panel A of Table 9 examines the relation between board independence and expense ratios. The dependent variable in each column is the fund's net expense ratio, which reflects any fee waivers or refunds, in percentage form. Panel B uses logit models to estimate the effect of independent directors on financial misrepresentation. The dependent variable in column 1 is equal to 1 in fund-year observations for which the fund is subject to U.S. Securities and Exchange Commission (SEC) enforcement actions for financial misrepresentation. The dependent variable in column 2 is equal to 1 if the fund engages in destructive return of capital (ROC). ROC distributions are identified in Morningstar and defined as "destructive" if occurring at a fund trading at a premium to net asset value. The test in column 2 is run only on the subsample of funds that have traded at a premium over the prior year. Variables are defined in the Appendix. Throughout both panels, standard errors are clustered by year and fund, following Petersen (2009), and each column includes fund category and year fixed effects. *t*-statistics are in square brackets. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Expense Ratios

Variable	1	2
BOARD_INDEPENDENCE	−0.007 [−2.13]**	−0.005 [−1.82]*
CO-OPTED_DIRECTORS	0.0003 [1.61]	0.0003 [1.95]*
BOARD_SIZE	−0.012 [−1.91]*	0.010 [1.24]
ln(FUND_AGE)	0.034 [1.28]	0.062 [3.15]***
ln(FAMILY_SIZE)	−0.039 [−3.56]***	0.010 [0.19]
AVG_EXPENSE_RATIO	0.004 [1.92]*	0.001 [0.52]
ONE_YEAR_NAV_RETURN	−0.007 [−2.13]**	0.009 [8.26]***
LEVERAGE	0.010 [6.15]***	−0.131 [−10.62]***
ln(ASSETS)	−0.156 [−8.43]***	0.014 [3.91]***
TURNOVER	0.016 [4.20]***	0.003 [1.05]
FRIENDLY_BLOCKHOLDINGS	−0.0002 [−0.07]	0.002 [0.17]
INSIDER_OWNERSHIP	0.011 [1.14]	0.024 [1.50]
TAKEOVER_DEFENSE_INDEX	0.054 [3.18]***	−0.005 [−1.82]*
Fund family fixed effects	No	Yes
No. of obs. Adj. R^2	7,679 0.316	7,679 0.438

(continued on next page)

TABLE 9 (continued)
Board Decisions

Panel B. Financial Misrepresentation

Variable	SEC_FRAUD 1	DESTRUCTIVE_ROC 2
BOARD_INDEPENDENCE	−0.054 [−2.78]***	−0.022 [−2.11]**
CO-OPTED_DIRECTORS	−0.001 [−0.19]	−0.009 [−1.23]
BOARD_SIZE	−0.201 [−1.53]	0.073 [1.42]
ln(FUND_AGE)	−0.682 [−2.81]***	−0.819 [−1.70]*
ln(FAMILY_SIZE)	−0.365 [−2.81]***	−0.172 [1.99]**
NET_EXPENSE_RATIO	−2.432 [−3.16]***	−1.631 [−2.74]***
ONE_YEAR_NAV_RETURN	−0.003 [−0.23]	−0.031 [−1.10]
LEVERAGE	−0.292 [−1.79]*	−0.374* [−1.81]
ln(ASSETS)	0.032 [1.20]	−0.049 [−0.75]
TURNOVER	0.076 [2.30]**	−0.085 [−1.20]
FRIENDLY_BLOCKHOLDINGS	0.027 [1.17]	0.188 [1.40]
INSIDER_OWNERSHIP	−0.160 [−1.43]	0.136 [0.34]
No. of obs.	7,679	2,169
Pseudo-R^2	0.212	0.129

multiple fund-years. I find 64 fund-year observations with financial misrepresentation in the sample, which take place across 41 funds. Many of these cases involve improper valuation of assets, which occur because of manipulated dealer quotes or improper valuation of illiquid fixed-income securities. Other examples of enforcement actions include fraudulent misstatements on derivative usage or Rule 19a-1 violations for failing to identify a distribution as return of capital.

Column 1 in Panel B of Table 9 reports a logit model, where the dependent variable is equal to 1 if an accounting-related violation occurred during the fund-year observation. BOARD_INDEPENDENCE has a negative and significant coefficient, implying that these enforcement cases occur less frequently in funds with higher board independence. This finding is consistent with the idea that these boards provide higher quality monitoring of disclosure practices.

I next look to the fund's use of return of capital, a portion of the overall distribution that is funded from the asset base rather than portfolio returns. By effectively returning the investors' principal as a component of the distribution, funds can advertise distribution rates that exceed the actual rate of return on the underlying investments. Investors mistakenly interpret this distribution as earnings while the asset base of the fund slowly erodes. Return of capital is a controversial issue in practice. Although it can be used to manipulate distribution rates, some practitioners argue that it benefits investors in funds that trade at extreme discounts. For example, if a fund is trading at a 15% discount, investors could sell their shares for

only 85 cents on the dollar in the open market. If this fund were to return principal as a part of distributions, shareholders would receive the distribution of principal at its full NAV, a premium over the current market price. According to corporate finance theory, this type of return of capital not only benefits shareholders directly by returning capital at a premium, but it also should increase firm value (Jensen and Meckling (1976)). Pontiff (2006) also shows that under general assumptions, higher distribution rates increase the returns of holding a discounted fund.

I exclude these potentially beneficial cases from the measure, DESTRUCTIVE_ROC. I define a distribution as DESTRUCTIVE_ROC if at least a portion of the distribution is coded as return of capital by Morningstar, and the fund is trading at a premium to NAV. Funds engaging in DESTRUCTIVE_ROC are therefore i) returning principal to investors as a portion of the overall distribution rate and ii) providing no benefit to investors because of the market price of the fund being above NAV. Based on these requirements, 4.96% of fund-year observations issue destructive return of capital.[5] Column 2 in Panel B of Table 9 reports a logit model where the dependent variable equals 1 for fund-year observations with a DESTRUCTIVE_ROC distribution. Because the definition of "destructive" requires the fund to be trading at a premium, I limit the sample to funds trading at a premium. I find a negative effect of BOARD_INDEPENDENCE, implying that independent directors provide better monitoring of disclosure practices. Across both tests of misrepresentation, independent directors provide monitoring that is more in line with shareholder interests.

VII. Conclusion

I use a sample of closed-end funds to examine the relation between board independence and firm value, which is largely questioned in the literature. The closed-end fund discount allows for more precise testing of the association between these variables, as it is free from accounting and estimation biases found in more traditional measures of the disparity between market value and underlying asset value. The results of this article strongly support a positive relation between board independence and firm value, robust to a variety of specifications and methods, and this relation appears to be understated by OLS.

The results of this article have applications to the general literature on board composition and corporate governance. The evidence provided here is at odds with several prior studies suggesting that board independence does not affect firm value, or that independence reduces firm value. This article also contributes to our understanding of the decision making of independent directors. Finally, it contributes to the closed-end fund literature, which has seen limited studies on the role of governance in explaining the closed-end fund discount.

[5]To my knowledge, this is the first academic study to explore return-of-capital distributions. Only a few practitioner studies exist on the prevalence of return of capital. A 2014 presentation for the Mutual Fund Directors Forum (available at https://web.archive.org/web/20161020233622/http://www.mfdf.org/images/DirResPDFs/Distribution_Dilemma_CEF.pdf) finds that 30.4% of closed-end funds have a return of capital component in 2013. In my sample, I find 22.6% of fund-year observations have a return of capital component, unconditional on the "deceptive" classification.

Appendix. Variable Definitions

This appendix provides definitions for each variable.

Variables of Interest

BOARD_INDEPENDENCE: Percent of directors classified as independent according to the proxy filing, excluding any gray directors (former employees or parties engaging in business transactions with the fund).

Dependent Variables

PREMIUM: Average annual fund premium (discount) to NAV taken from monthly observations.

NET_EXPENSE_RATIO: Fund net expense ratio, in percentage terms, net of any waived fees.

DESTRUCTIVE_ROC: Equal to 1 if the fund engaged in destructive return-of-capital practices, defined as a distribution i) in excess of NAV returns and ii) for a fund trading at a premium to NAV; equal to 0 if the fund trades at a premium to NAV.

SEC_FRAUD: Equal to 1 if the fund faced SEC enforcement action for financial misrepresentation for actions taken during the fund-year observation.

Control Variables

BOARD_SIZE: Number of directors.

BOOK_TO_MARKET_DECILE (equity only): Decile based on book-to-market ratio of a fund's top 10 holdings, for equity funds only.

AVG_EXPENSE_RATIO: Average expense ratio for funds within the fund category, excluding the focal fund.

CO_OPTED_DIRECTORS: Percent of directors that are co-opted, following Coles, Daniel, and Naveen (2014).

FRIENDLY_BLOCKHOLDINGS: Institutional holdings in excess of 5% of a fund's outstanding shares, classified as friendly according to Barclay et al. (1993).

INSIDER_OWNERSHIP: Insider ownership as reported in the proxy.

LEVERAGE: Fund's reported leverage ratio, in percentage terms.

ln(ASSETS): Natural log of fund assets.

ln(FAMILY_SIZE): Natural log of the total number of funds in the fund family.

ln(FUND_AGE): Natural log of the fund's age in years.

TURNOVER: Monthly trading volume scaled by shares outstanding, averaged across the prior year.

ONE_YEAR_NAV_RETURN: Prior-year return of investments as a percentage of NAV.

SIZE_DECILE (equity only): Decile based on average market cap of a fund's top 10 holdings, for equity funds only.

TAKEOVER_DEFENSE_INDEX: Index of fund takeover defenses based on Souther (2016).

WEIGHTED_AVERAGE_MATURITY (fixed income/tax preferred): Weighted average maturity in years of a fund's top 10 holdings, for fixed-income and tax-preferred funds only.

WEIGHTED_AVERAGE_RATING (fixed income/tax preferred): Weighted average bond rating (1 = AAA, 2 = AA+, etc.), for fixed-income and tax-preferred funds only.

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