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Dead Hand Proxy Puts and Hedge Fund Activism

Sean J. Griffith and Natalia Reisel*

Abstract

We investigate the Dead Hand Proxy Put, a contractual innovation in corporate debt agreements that may impact hedge fund activism. We find the provision principally in loans, not bonds, and provide evidence linking the adoption of the provision to hedge fund activism. Furthermore, controlling for endogeneity, we find that the provision significantly reduces the cost of loans. Bondholder wealth also increases. Moreover, cross-sectional analysis of share returns reveals that the provision is positively associated with repeat banking relationships and negatively associated with free cash flow problems, suggesting a cost-benefit tradeoff.

I. Introduction

The Dead Hand Proxy Put is a contractual innovation in corporate debt agreements that changes the nature of proxy fights. The provision triggers default and immediate repayment of corporate indebtedness if there is a changeover in the board of directors as a result of an actual or threatened proxy contest. Since the prospect of a default on corporate debt creates a strong incentive for shareholders to vote *against* dissident nominees, the provision alters the odds of a successful proxy contest and, with it, the company's susceptibility to hedge fund activism.

For example, in the 2009 proxy fight for Amylin Pharmaceuticals, when Icahn Partners and Eastbourne Capital sought control of the board, Amylin

*Griffith, sgriffith@fordham.edu, Fordham University Law School; Reisel (corresponding author), nreisel@fordham.edu, Fordham University Gabelli School of Business. We have benefited from discussions with Yakov Amihud, Jennifer Arlen, Alon Brav, Joe Grundfest, Victoria Ivashina, Frank Partnoy, Eric Talley, John Wald, and Mark Weinstein and from comments received at the 2016 American Law and Economics Association conference, the 2016 Conference on Empirical Legal Studies and presentations at Florida State University, Fordham University, the University of California Los Angeles, the University of Notre Dame, the University of Southern California, and at Young Conaway Stargatt & Taylor. An earlier version of this paper was circulated under the title "Dead Hand Proxy Puts, Hedge Fund Activism, and the Cost of Capital." We also thank Paul Malatesta (the editor) and an anonymous referee for their constructive guidance that greatly improved the paper.

responded by notifying its shareholders that its debt contained a Dead Hand Proxy Put.[1] If the activists won the proxy fight, the company warned:

"[O]ur business could be adversely affected because . . . we may be required to repay $575 million under our 2007 Notes, $125 million under our Term Loan and any amounts that may be outstanding under our $15 million revolving credit facility, and if a cross-default is triggered, $200 million under our 2004 Notes. . . . We may not have the liquidity or financial resources to do so at the times required or at all."[2]

Dead Hand Proxy Puts may thus lead shareholders to vote against hedge fund activists, regardless of the merits of the activist's plans. As a result, the provision has attracted attention from courts and commentators as a deterrent to hedge fund activism (Solomon (2014), Hoffman (2015), and Murphy (2015)).

There is considerable evidence that hedge fund activism increases shareholder wealth, at least in the short term (see, e.g., Brav, Jiang, Partnoy, and Thomas (2008), Klein and Zur (2009), Gantchev (2013), and Bebchuk, Brav, and Jiang (2015)). The effect on debtholders, however, is more controversial. Hedge fund activism may induce managers to increase equity value at the expense of debtholders by increasing leverage and dividend payouts, or by engaging in asset substitution or other forms of financial restructuring (Smith and Warner (1979), Nash, Netter, and Poulsen (2003), Klein and Zur (2011), and Sunder, Sunder, and Wongsunwai (2014)).

We hypothesize that the Dead Hand Proxy Put is a contractual device for mitigating the conflicts between shareholders and debtholders that can be exploited through hedge fund activism. The Dead Hand Proxy Put provides an exit right for debtholders, whose extensions of credit are premised on a particular mix of assets and cash flows as well as a particular business strategy, if the basis for the loan seems likely to change. Debtholders, and debtholders alone, have the power to waive the provision, thus ensuring that hedge fund activism will not serve as a mechanism to transfer wealth from debtholders to shareholders.

This hypothesis generates testable implications. If the provision is related to hedge fund activism, it should be found in the debt agreements of those companies most susceptible to an activist intervention. If debtholders value the provision as a protection against wealth transfer, it should be reflected in the price of debt. The provision also has implications for shareholders. On the one hand, the provision can impose costs on shareholders by inhibiting value-enhancing activism and entrenching underperforming managers. On the other hand, the provision can benefit shareholders by providing a bonding guarantee to debtholders, thereby reducing the cost of debt. This paper tests these implications empirically, providing new evidence on the role and effect of Dead Hand Proxy Puts.

Our findings consistently connect Dead Hand Proxy Puts to hedge fund activism. The incidence of the provision increased over our 20-year sample period, most sharply in the mid 2000s, roughly at the advent of the era of hedge fund activism. We also find that the provision is most prevalent among companies

[1] Hedge fund activists' campaigns are premised on the (often implicit) threat of a proxy fight. See Section II for details.

[2] Amylin Pharmaceuticals, Inc., Annual Report on Form 10-K for the year ending Dec. 31, 2008.

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that the prior literature identifies as the most likely targets of hedge fund activism, that is, smaller companies that pay lower dividends and have lower leverage ratios (Brav, Jiang, and Kim (2010), Clifford (2008), and Klein and Zur (2009)). To test this connection further, we ask whether companies that actually experience activism are more likely to adopt the provision. Here, we find that whether a company has had an activist event seems to have no impact on whether the company *subsequently* adopts a Dead Hand Proxy Put. However, we find statistically significant evidence that companies do modify their loan contracts in *anticipation* of experiencing hedge fund activism. Moreover, we find that industry peers of firms targeted by hedge funds tend to adopt Dead Hand Proxy Puts. Our evidence thus confirms the connection between Dead Hand Proxy Puts and hedge fund activism.

We also find that Dead Hand Proxy Puts have an economically and statistically significant effect on the cost of debt. Using law firm identity as an instrument to address endogeneity concerns, we find that the inclusion of a Dead Hand Proxy Put reduces the cost of loans by as much as 50 basis points (bps).[3] This finding is robust to a set of control variables, including company and loan characteristics, to alternative estimation techniques, including the treatment effects model and a 2-step IV method, and to an alternative instrument.

Although common in loan agreements, we find that the provision is extremely rare in bond indentures. However, we find that bondholders react positively to the introduction of Dead Hand Proxy Puts in loan contracts, suggesting a spillover benefit to bondholders from the protection that the provision provides to bank lenders. This increase in bondholder wealth may seem to come at shareholders' expense, but our tests find that shareholders do not react negatively, on average, to the introduction of Dead Hand Proxy Puts. At the same time, we find evidence of cross-sectional variation in shareholder reaction. Shareholder returns are higher for firms with repeat banking relationships and lower for firms with free cash flow problems. This is especially true for firms with large cash holdings and small dividend yields, suggesting a cost-benefit tradeoff to shareholders from Dead Hand Proxy Puts.

Our study is the first to our knowledge to examine Dead Hand Proxy Puts and their wealth effects. Our findings make several important contributions to the literature. First, our study contributes to the literature on hedge fund activism. A contested question in the literature is whether activism creates value to all stakeholders, or redistributes it to shareholders from other constituencies, such as creditors. By linking Dead Hand Proxy Puts and hedge fund activism, and demonstrating that creditors value the provision, our findings provide new evidence that creditors take the redistributive potential of activism seriously and seek to address the risk ex ante in the negotiation of loan contracts.

Second and more broadly, our study contributes to the literature on firm defenses against outside intervention. In contrast to the conventional view that defensive provisions serve principally to entrench managers, a number of papers identify benefits created by takeover defenses. Knoeber (1986), Shleifer and Summers (1988), and Johnson, Karpoff, and Yi (2015), for example, suggest that

[3]Section V.B defends the use of this instrument.

takeover defenses decrease the likelihood of opportunistic exploitation of large customers and alliance partners, thus encouraging these counterparties to invest in the business relationship. In this vein, we identify a specific additional benefit of contractual defenses, reducing the risk of creditor exploitation, thus facilitating lower cost financing. Our findings also relate to Francis, Hasan, John, and Waisman (2010), who show that strong state anti-takeover laws are positively related to bond values. Unlike these authors, however, our findings focus on contractual defenses, not state legislation, and on the unique context of hedge fund activism, not takeovers.

Third, our study extends prior work on how financial contracting corrects and preserves incentives for investment by remediating the conflict between debtholders and equityholders. Theoretical literature suggests that covenants in financial contracts mitigate this conflict (Tirole (2006)). Debt covenants constrain managers from acting to increase equity value at the expense of debt (Smith and Warner (1979), Rajan and Winton (1995), and Billett, King, and Mauer (2007)). Furthermore, debt covenants enable firms to raise capital by allocating state-contingent control rights (Aghion and Bolton (1992), Dewatripont and Tirole (1994)). We provide new empirical evidence on how debt contracts can mitigate the conflict between debtholders and shareholders created by hedge fund activism. Rather than prohibiting activism outright, Dead Hand Proxy Puts provide consultation rights for creditors in the event that an activist proposes changes to the business or financial plan on which the extension of credit was premised. Consistent with this account, we find the provision in loan contracts, but generally not in bond indentures. Loan defaults, unlike bond defaults, do not invariably trigger repayment, but present an opportunity to negotiate with the lenders (see, e.g., Chava and Roberts (2008), Roberts and Sufi (2009)).[4] We thus present a case study of a contractual innovation that effectively provides creditors with optionality in the event of hedge fund activism.

Finally, our findings inform the current policy debate on the enforceability of Dead Hand Proxy Puts. Contrary to the concerns of courts that the provision reduces shareholder value,[5] we find evidence that shareholders value Dead Hand Proxy Puts. Specifically, shareholders of firms with repeat banking relationships benefit significantly from Dead Hand Proxy Puts, suggesting that the benefits of providing a bonding guarantee to creditors outweigh the cost of decreased susceptibility to hedge fund activism. However, we also find evidence that the net benefit of the provision is likely to be smallest for shareholders of firms with free cash flow problems, suggesting that in at least in some firms, managers use Dead Hand Proxy Puts to benefit themselves without creating value for shareholders.

The rest of the paper proceeds as follows: Section II defines the Dead Hand Proxy Put and discusses its role in mitigating the shareholder–creditor conflict

[4]Creditors have demonstrated a willingness to negotiate and waive the provision. For example, in the *Amylin* case referred to above, the creditors waived the Dead Hand Proxy Put in exchange for a 50-bp fee on any outstanding balance under the Credit Agreement.

[5]San Antonio Fire & Police Pension Fund v. Amylin Pharmaceuticals ("Amylin"), 983 A.2d 304 (Del. Ch. May 12, 2009); Kallick v. Sandridge, 68 A.3d 242 (Del. Ch. Mar. 8, 2013); Pontiac Gen. Employees Ret. Sys. v. Ballantine, C.A. No. 9789-VCL, 2014 WL 6388645 (Del. Ch. Oct. 14, 2014) (transcript).

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inherent in hedge fund activism. Section III describes our data and provides descriptive statistics. Section IV contains our analysis of companies adopting the Dead Hand Proxy Put. Section V provides our analysis of the impact of the Dead Hand Proxy Put on the price of loans. Section VI examines bondholder and shareholder reactions to Dead Hand Proxy Puts. Finally, Section VII summarizes our findings and offers a brief conclusion.

II. The Dead Hand Innovation

Since the leveraged buyout wave of the 1980s, corporate debt agreements have included a "change-of-control" provision, which triggered default primarily upon the acquisition of a controlling block of shares.[6] Hedge fund activists, however, seek to influence corporate policies without acquiring a controlling block of shares. Because activist tactics avoid the standard trigger, these provisions will fail to protect creditors from potential wealth expropriation.

The Dead Hand Proxy Put responds to this gap in creditor protection by triggering default upon a changeover in the majority of the board of directors resulting from an actual or threatened proxy contest. Moreover, the provision expressly allocates the power to waive this trigger to creditors alone. Unless the creditor consents to the activist's nominees, their election will trigger default and, immediately thereafter, a cascade of cross-defaults, making all corporate debt immediately due and payable. The desire to avoid these consequences could lead shareholders to vote against the activist's nominees, causing the activist's proxy contest to fail.

The threat of a proxy fight is present, whether explicitly or implicitly, in every activist campaign to influence corporate policy. If firm managers do not accede to the activist's demands, the activist can threaten to wage a proxy contest for control. By undermining the ability of an activist to wage a successful proxy contest, the Dead Hand Proxy Put weakens the activist's negotiating position in every intervention. As described by a court evaluating the provision, "because the proxy put exists, it necessarily has an effect on people's decision-making about whether to run a proxy contest and how to negotiate…."[7] The Dead Hand Proxy Put can thus operate as a defense against hedge fund activism.

Although the Dead Hand Proxy Put protects creditors, the provision may also impose costs on shareholder interests by inhibiting value-enhancing activism. Alternatively, Dead Hand Proxy Puts may provide benefits to shareholders by mitigating the shareholder–bondholder conflict created by hedge fund activism and reducing the cost of debt. Rational creditors will anticipate the risk of ex post expropriation from hedge fund activism and price the firm's debt accordingly, charging higher interest rates. Shareholders pay these higher rates ex ante when the debt is issued, and thus benefit from the introduction of contractual mechanisms

[6] Kahan and Klausner (1993) and Qi and Wald (2008) among others analyze antitakeover provisions in bond contracts. Billett, King, and Mauer (2004) provide empirical evidence on shareholder–bondholder conflicts in mergers and acquisitions. For additional empirical evidence on the shareholder–bondholder conflicts, see Maxwell and Stephens (2003).

[7] *Pontiac General v. Ballantine* ("Healthways"), 2014 WL 6388645 (Del. Ch. Oct. 14, 2014) (transcript).

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to minimize the agency cost of debt (Jensen and Meckling (1976), Smith and Warner (1979), and Bradley and Roberts (2015)). As such a mechanism, the Dead Hand Proxy Put can benefit shareholders by reducing the cost of debt.

It is up to managers to decide whether to include Dead Hand Proxy Puts in corporate debt agreements. If managers act in a manner consistent with shareholders' interests, they will weigh the costs and benefits of the Dead Hand Proxy Put and include the provision only when the net benefit to shareholders is positive. Alternatively, if managers act in their own interests, they may include the provision, even if shareholders do not benefit. For example, Dead Hand Proxy Puts could enable managers to enjoy the quiet life (Bertrand and Mullainathan (2003)). Moreover, the literature suggests that risk-averse managers, like debtholders, prefer lower risk projects compared to shareholders (Amihud and Lev (1981)). Thus, managers may sometimes act in the interest of debtholders. We describe our empirical approach to these possibilities in Section VI.

III. Data and Descriptive Statistics

In this section, we describe the data used in the analysis.

A. Sample Selection

We start with the 2015 version of DealScan, a database distributed by the Loan Pricing Corporation. DealScan contains a large majority of sizable commercial loans in the U.S. and has been commonly used in academic research (see, e.g., Bradley and Roberts (2015), Sunder et al. (2014)). We merge the DealScan and Compustat databases using the linking table available through Wharton Research Data Services (WRDS) and originally created by Chava and Roberts (2008). We require that all borrowers in our sample have nonmissing total assets in Compustat at the loan start date.

We use Intelligize (https://www.intelligize.com/) to identify loan contracts that include Dead Hand Proxy Puts. The Intelligize platform is a Web-based service that searches U.S. Securities and Exchange Commission (SEC) filings. We ran searches to uncover the two forms of the provision that we had found in loan contracts.[8] After confirming the validity of the search results, we merged these data with the combined DealScan–Compustat data using company Central Index Key (CIK) numbers. This procedure results in a sample of 53,132 loans covering 7,788 companies from 1994 to 2014. The data coverage begins in 1994 for the Intelligize database, while loan coverage ends for the DealScan database in 2014.

Additionally, we use FactSet Shark Repellent, a database that tracks activist actions, takeover defenses, and shareholder voting for data on hedge fund activism. We use the Trade Reporting and Compliance Engine (TRACE) database

[8]We found the provision in two forms: i) "excluding … any individual whose initial nomination for, or assumption of office as, a member of that board or equivalent governing body occurs as a result of an actual or threatened solicitation of proxies or consents for the election or removal of one or more directors by any person or group other than a solicitation for the election of one or more directors by or on behalf of the board of directors," and ii) "excluding any such individual originally proposed for election in opposition to the Board of Directors in office at the Agreement Effective Date in an actual or threatened election contest relating to the election of the directors (or comparable managers) of Parent and whose initial assumption of office resulted from such contest or the settlement thereof."

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to obtain bond prices and the Fixed Income Securities Database (FISD) to obtain bond characteristics.

We also investigate whether bond contracts include a Dead Hand Proxy Put and found just approximately 60 bond contracts with this provision. This may be due to an important difference between the operation of bond indentures and loan agreements in default. Bond defaults, due to coordination problems and the lack of an ongoing commercial relationship between the bondholders and the debtor, invariably trigger repayment. Loan defaults, by contrast, present an opportunity to negotiate with the lenders, who could agree to waive or amend the loan agreement to avoid or cure the default (see, e.g., Chava and Roberts (2008), Roberts and Sufi (2009)).

B. Sample Characteristics

Descriptive statistics for loans in our sample are presented in Table 1.

As described in Table 1, the average loan maturity is approximately 4 years, with the loan amount varying substantially. The mean loan amount is $340 million, while the median is $120 million. Approximately half of the loans in our sample are secured by collateral. Dead Hand Proxy Puts are included in 4.7% of the loan contracts in our sample.

Table 1 also reports borrower characteristics. Return on assets (ROA) is earnings before interest, taxes, depreciation, and amortization divided by total assets. Market-to-book (MB) is total assets minus book equity plus market equity divided by total assets. Dividend yield (DIVIDEND_YIELD) is common dividend divided by market value of common shares. Book leverage (BOOK_LEVERAGE) is long-term debt plus short-term debt divided by total assets. Cash (CASH) is cash plus short-term investments divided by total assets. Tangible assets (PPE) is property, plant, and equipment divided by total assets. All variables are reported as of 1 year prior to the loan start date. The mean size of total assets is $10,669 million, while

TABLE 1
Descriptive Statistics

Table 1 reports the summary statistics for company and loan characteristics for loan contracts in our sample. The sample covers the time period from 1994 to 2014. ROA is earnings before interest, taxes, depreciation and amortization divided by total assets. MB is total assets minus book equity plus market equity divided by total assets. DIVIDEND_YIELD is common dividend divided by market value of common shares. BOOK_LEVERAGE is long-term debt plus short-term debt divided by total assets. CASH is cash plus short-term investments divided by total assets. PPE is property, plant, and equipment divided by total assets. The firm-level variables are calculated 1 year prior to the loan start date. COLLATERAL equals 1 for collateralized loans, and 0 otherwise. DHPP is a dummy variable that equals 1 for loans that include Dead Hand Proxy Puts, and 0 otherwise.

	No. of Obs.	Mean	Median	Std. Dev.
Firm Characteristics				
TOTAL_ASSETS ($mill.)	50,804	10,669.213	873.217	42,832.934
ROA	45,063	0.116	0.120	0.116
MB	38,988	1.732	1.416	1.002
DIVIDEND-YIELD	38,849	0.012	0.000	0.022
BOOK-LEVERAGE	50,034	0.350	0.323	0.252
CASH	46,190	0.086	0.037	0.124
PPE	48,903	0.527	0.447	0.404
Loan Characteristics				
MATURITY (month)	49,279	47.358	48.000	29.384
LOAN_AMOUNT ($mill.)	53,130	340.534	120.000	844.812
COLLATERAL	53,132	0.486		
DHPP	53,132	0.047		

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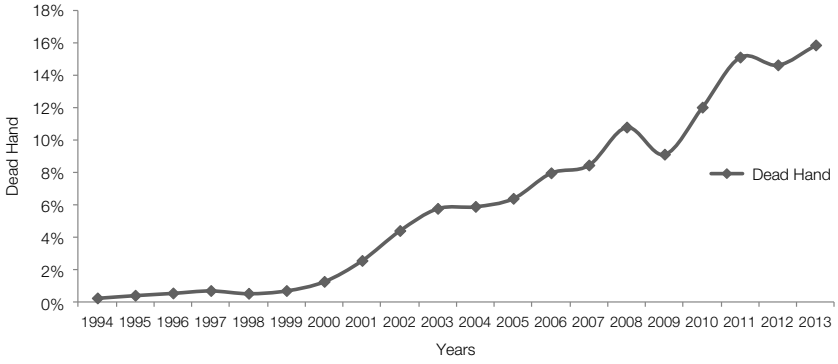
the median is $873 million. The firms have substantial tangible assets, 52.7% on average. The mean book leverage is 35% and the mean return-on-assets is 11.6%.

Figure 1 presents the distribution of Dead Hand Proxy Puts over time.

Interestingly, we document a significant positive time trend in the incidence of this provision. Only 0.24% of the loan contracts in our sample include Dead Hand Proxy Puts in 1994. Dead Hand Proxy Puts become more prevalent in the early 2000s but uptick sharply after 2008, reaching 16% by the end of our sample period. Hedge fund activism increases sharply over roughly the same period.[9]

FIGURE 1
Dead Hand Proxy Puts Across Time, 1994–2014

Figure 1 presents frequencies of Dead Hand Proxy Puts in loan contracts in our sample across time.



IV. Company Analysis

In this section, we investigate what types of companies include Dead Hand Proxy Puts in their loan contracts. Brav et al. (2010) summarize characteristics of companies that are subject to hedge fund activism. We use similar company characteristics in our analysis to investigate whether a company that is likely to be subject to hedge fund activism is more likely to include a Dead Hand Proxy Put.

A. Univariate Analysis

Results of the means comparison of the characteristics of companies that include the Dead Hand Proxy Put and those that do not are reported in Table 2.[10]

As Table 2 demonstrates, companies with Dead Hand Proxy Puts in their loan contracts are significantly smaller than borrowers without Dead Hand Proxy Puts, with total assets of $3,179.33 million versus $11,054.90 million. This difference is economically significant and statistically significant at the 1% level. Borrowers who include Dead Hand Proxy Puts also have substantially lower dividend yield, 0.009 versus 0.012, and they have a lower leverage ratio than borrowers without

[9]See, e.g., Partnoy ((2015), p. 2): "securities filings suggest that hedge fund activism has been significant since the late 1990s, but not before."

[10]We also verified these results by adjusting for clustering at the firm level. We ran a series of univariate OLS regressions with firm characteristics as dependent variables.

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TABLE 2

Dead Hand Proxy Put and Company Characteristics: Means Comparison

Table 2 compares company characteristics of loan contracts with and without Dead Hand Proxy Puts. The sample covers the time period from 1994 to 2014. The variables are described in Table 1 and Section III.B of the text. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	DHPP = 0		DHPP = 1		
	No. of Obs.	Mean	No. of Obs.	Mean	Diff
TOTAL_ASSETS	48,316	11,054.899	2,488	3,179.332	*7,875.567***
ROA	42,892	0.116	2,171	0.116	*–0.000*
MB	36,994	1.732	1,994	1.734	*–0.002*
DIVIDEND_YIELD	36,858	0.012	1,991	0.009	*0.003***
BOOK_LEVERAGE	47,586	0.352	2,448	0.309	*0.043****
CASH	43,996	0.085	2,194	0.108	*–0.023****
PPE	46,440	0.530	2,463	0.474	*0.056****

Dead Hand Proxy Puts. The balance sheets of borrowers who include Dead Hand Proxy Puts also reflect more cash, 10.8% versus 8.5%, and less property, plant, and equipment. All of these differences are significant at the 1% level.

B. Regression Analysis

To further test the significance of these borrower attributes, we run probit regressions to estimate the probability of the inclusion of Dead Hand Proxy Put on the basis of these attributes. Table 3 reports the results of these regressions.

Similar to the univariate results, specification 1 in Table 3 demonstrates that large companies are less likely to include the Dead Hand Proxy Put in their loan contracts. We also continue to find that companies with low dividend payouts

TABLE 3

Dead Hand Proxy Put and Company Characteristics: Regression Analysis

Table 3 reports the results of the regression analysis. The probability of inclusion of the Dead Hand Proxy Put in loan contracts is estimated. The sample covers the time period from 1994 to 2014. The variables are described in Table 1 and Section III.B of the text. Specifications 1–3 report the results of the probit regressions. Average marginal effects are reported. Specification 4 reports the results of the linear probability model. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	1	2	3	4
ln(TOTAL_ASSETS)	−0.0064***	−0.0064***	−0.0076***	−0.0059***
	(0.001)	(0.001)	(0.001)	(0.001)
ROA	−0.0024	−0.0016	−0.0013	−0.0009
	(0.017)	(0.017)	(0.020)	(0.017)
MB	−0.0013	−0.0015	−0.0017	−0.0017
	(0.002)	(0.002)	(0.003)	(0.002)
DIVIDEND_YIELD	−0.2623**	−0.2618**	−0.3078**	−0.2530**
	(0.136)	(0.136)	(0.156)	(0.118)
BOOK_LEVERAGE	−0.0215**	−0.0210*	−0.0271**	−0.0267***
	(0.011)	(0.012)	(0.013)	(0.011)
PPE	−0.0106	−0.0105	−0.0140*	−0.0116*
	(0.007)	(0.007)	(0.008)	(0.007)
CASH		0.0035		
		(0.019)		
Year dummies	Yes	Yes		
Industry dummies	Yes	Yes		
Year × industry dummies			Yes	Yes
No. of obs.	37,368	37,361	31,943	37,368
Log likelihood/Adj. R^2	−6,569	−6,568	−6,380	0.068

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are more likely to include the Dead Hand Proxy Put. Hedge fund activists tend to target smaller companies with lower dividend payouts (Brav et al. (2010)). Additionally, we document that leverage is negatively related to the likelihood of inclusion of the Dead Hand Proxy Put in loan contracts. One of the main objectives of hedge fund activism is capital structure adjustments to increase leverage (Brav et al. (2010), Clifford (2008), and Klein and Zur (2009)). Companies with low leverage are more likely to be subject to activist interventions to increase leverage and, thereby, credit risk. In specification 2, we add a control for cash holdings. We continue to find that company size, dividend payout and leverage are important determinants of the inclusion of a Dead Hand Proxy Put. Thus, consistent with the concern that activists target companies where they can shift risk to creditors by increasing leverage and paying capital out to shareholders, creditors appear to deploy Dead Hand Proxy Puts to defend against these risks where they seem particularly acute. Specification 3 includes year and industry interactive effects and shows that the results are robust to controlling for industry-specific time trends. Specification 4 provides a further robustness check, using a linear probability model rather than a probit model.

1. Company-Level Activism

To further investigate whether Dead Hand Proxy Puts are deployed as defenses to hedge fund activism, we consider actual interventions by hedge fund activists, including proxy fights (22.66% of the sample), 13D filings (9.03%), exempt solicitations (0.68%), and other public activist campaigns (67.63%).[11] In order to maintain a sufficiently large sample for analysis, we include all of these forms of activism. Our hypothesis is that the Dead Hand Proxy Put should be linked to prior or future activists' attacks. Table 4 reports the results on the incidence of shareholder activism among firms in our sample with Dead Hand Proxy Puts.

Specification 1 in Table 4 examines whether hedge fund activism prior to the loan start date has an impact on the incidence of Dead Hand Proxy Puts in loan contracts. The coefficient of ACTIVISM_BEFORE is insignificant, suggesting that prior events of hedge fund activism have no impact on the likelihood of the inclusion of Dead Hand Proxy Puts in loan contracts. Specification 3 examines whether the adoption of Dead Hand Proxy Puts in debt contracts is associated with *subsequent* hedge fund activism events. The coefficient of ACTIVISM_AFTER is positive and highly statistically significant, suggesting that loan contacts are indeed modified in anticipation of hedge fund activism. Specifications 2 and 4 show that these results are robust to using liner probability models instead of probit models.

The adoption of a defensive provision might seem to reduce the likelihood of a subsequent activist intervention. However, our findings suggest that the Dead Hand Proxy Put is not necessarily designed to trigger acceleration or to stop hedge fund activism, but rather to create a consultation right for creditors in the event that

[11] See www.sharkrepellent.net for a description of each type of intervention.

TABLE 4
Dead Hand Proxy Put and Hedge Fund Activism

Table 4 reports the results of the regression analysis. The probability of the inclusion of the Dead Hand Proxy Put in loan contracts is estimated. The sample covers the time period from 1994 to 2014. ACTIVISM_BEFORE is a dummy variable that equals 1 if the company was subject to hedge fund activism prior to the loan start date, and 0 otherwise. ACTIVISM_AFTER is a dummy variable that equals 1 if the company was subject to hedge fund activism within 5 years after the loan start date, and 0 otherwise. Other variables are described in Table 1 and Section III.B of the text. Specifications 1 and 3 report the results of probit regressions. Average marginal effects are reported. Specifications 2 and 4 report the results of the linear probability model. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	1	2	3	4
ACTIVISM_BEFORE	0.0121	0.0184		
	(0.011)	(0.020)		
ACTIVISM_AFTER			0.1535***	0.4909***
			(0.010)	(0.033)
ln(TOTAL_ASSETS)	−0.0076***	−0.0058***	−0.0068***	−0.0053***
	(0.001)	(0.001)	(0.001)	(0.001)
ROA	−0.0012	−0.0007	0.0024	0.0024
	(0.020)	(0.017)	(0.018)	(0.016)
MB	−0.0016	−0.0015	−0.0005	−0.0006
	(0.003)	(0.002)	(0.002)	(0.002)
DIVIDEND_YIELD	−0.3008**	−0.2457**	−0.2306	−0.1916*
	(0.155)	(0.118)	(0.147)	(0.115)
BOOK_LEVERAGE	−0.0274**	−0.0266***	−0.0234*	−0.0223**
	(0.012)	(0.011)	(0.012)	(0.011)
PPE	−0.0144*	−0.0119*	−0.0109	−0.0092
	(0.008)	(0.007)	(0.008)	(0.007)
Year × industry dummies	Yes	Yes	Yes	Yes
No. of obs.	31,943	37,368	31,943	37,368
Log likelihood/Adj. R^2	−6,377	0.068	−5,987	0.139

an activist proposes changes to the business or financial plan on which the extension of credit was premised. The creditor can trigger acceleration or renegotiate the terms of the loan if, in its view, the activist intervention imperils the loan. Alternatively, the creditor waives the provision if the intervention does not increase creditor risk. Accordingly, we find that firms are more likely to adopt the provision in anticipation of activism.

2. Industry-Level Activism

To further test the connection between hedge fund activism and the demand for Dead Hand Proxy Puts, we investigate whether the industry peers of firms targeted by hedge funds subsequently adopt the provision. To do so, we count the number of activist interventions every year for each 3-digit Standard Industrial Classification (SIC) code (INDUSTRY_ACTIVISM). This time- and industry-varying measure proxies for the intensity of activist attacks across industries. Table 5 reports the results of this analysis. Specification 1 presents results of a parsimonious probit model relating INDUSTRY_ACTIVISM to the likelihood of the inclusion of a Dead Hand Proxy Put. The coefficient of INDUSTRY_ACTIVISM is positive and highly statistically significant, suggesting that when their industry peers are subject to hedge fund activism, companies are more likely to include a Dead Hand Proxy Put. Specification 2 shows that the coefficient of INDUSTRY_ACTIVISM remains positive and statistically significant (at the 10% level) even after controlling for company characteristics. Additionally, these results are robust to using a linear probability model.

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TABLE 5
Dead Hand Proxy Put and Industry Activism

Table 5 reports the results of the regression analysis. The probability of the inclusion of the Dead Hand Proxy Put in loan contracts is estimated. The sample covers the time period from 1994 to 2014. INDUSTRY_ACTIVISM is the number of activists' events within the company's 3-digit Standard Industrial Classification (SIC) code a year prior to the loan start date. Other variables are described in Table 1 and Section III.B of the text. Specifications 1 and 2 report the results of probit regressions. Average marginal effects are reported. Specification 3 reports the results of the linear probability model. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	1	2	3
INDUSTRY_ACTIVISM	0.0046***	0.0009*	0.0028**
	(0.000)	(0.0005)	(0.001)
ln(TOTAL_ASSETS)		−0.0062***	−0.0057***
		(0.001)	(0.001)
ROA		0.0002	0.0058
		(0.018)	(0.018)
MB		−0.0011	−0.0016
		(0.002)	(0.002)
DIVIDEND_YIELD		−0.2520*	−0.2556**
		(0.141)	(0.127)
BOOK_LEVERAGE		−0.0210*	−0.0247**
		(0.011)	(0.011)
PPE		−0.0117*	−0.0114
		(0.007)	(0.007)
Year dummies		Yes	Yes
Industry dummies		Yes	Yes
No. of obs.	47,547	35,224	35,224
Log likelihood/Adj. R^2	−9,318	−6,272	0.061

In summary, our company analysis demonstrates that several of the characteristics of companies adopting Dead Hand Proxy Puts are the same as those of companies that are subject to hedge fund activism. Many of these characteristics, such as lower dividend yields, and lower leverage ratios, might generally be shared by companies with high agency problems, but this is not true of all of the characteristics significantly related to the adoption of Dead Hand Proxy Puts. We find that small companies are more likely to adopt the provision, yet smaller companies are not usually thought to exhibit greater agency problems than larger companies. Moreover, we show that companies are significantly likely to adopt Dead Hand Proxy Puts prior to becoming subject to an activist intervention, and our industry-level tests demonstrate that peer firms of companies targeted by activists are significantly more likely to adopt the provision. These tests suggest that Dead Hand Proxy Puts are specifically responsive to the threat of hedge fund activism and are generally not an offshoot of agency problems.

V. Loan Pricing Analysis

In this section, we investigate the impact of a Dead Hand Proxy Put on loan pricing.

A. Means Comparison, OLS Regressions, and Propensity Score Matching

We start our analysis of the price impact of Dead Hand Proxy Puts with a means comparison. The results of this analysis are presented in Table 6, Panel A. The results suggest that Dead Hand Proxy Puts reduce the cost of debt. The

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TABLE 6

Loan Pricing Analysis: Means Comparison and OLS Regressions

Table 6 reports the results of the analysis of the loan-pricing impact of Dead Hand Proxy Put. The sample covers the time period from 1994 to 2014. Panel A reports the means comparison of loan spreads with and without Dead Hand Proxy Puts. Panel B reports the results of the OLS regression. The dependent variable is the loan spread. Z_SCORE is Altman's *Z*-score. CASH_FLOW_VOLATILITY is the standard deviation of cash flow over 5 years prior to the loan start date. COVENANTS is the sum of the restrictions on asset sales, equity issuance, debt issuances, dividend payments, and financial covenants. CREDIT_RATING_A – CREDIT_RATING_BELOW_BB are dummy variables for company credit ratings. Other independent variables are described in Table 1 and Section III.B of the text. Specifications also include dummy variables for missing covenants and credit ratings, where appropriate. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Means Comparison

	DHPP = 0		DHPP = 1		
	No. of Obs.	Mean	No. of Obs.	Mean	Diff.
LOAN_SPREAD	29,901	231.958	1,851	222.855	9.103***

Panel B. OLS Regressions

	1	2
DHPP	−5.4204**	−5.1386**
	(2.421)	(2.408)
ln(TOTAL_ASSETS)	−8.7384***	−9.2525***
	(0.883)	(0.974)
ROA	−65.9355***	−65.9663***
	(12.717)	(12.718)
MB	1.2354	1.3856
	(1.427)	(1.434)
BOOK_LEVERAGE	−2.7726	−3.5044
	(4.863)	(5.125)
Z_SCORE	0.1134	0.1368
	(0.503)	(0.502)
CASH_FLOW_VOLATILITY	101.4931***	100.5778***
	(28.529)	(28.473)
ln(MATURITY) (month)	−7.3341***	−7.5745***
	(1.436)	(1.428)
ln(LOAN_AMOUNT) ($millions)	−7.0586***	−7.3029***
	(0.821)	(0.829)
COLLATERAL	12.0092***	12.1039***
	(1.915)	(1.998)
COVENANTS	−3.6496***	−3.7854***
	(0.653)	(0.649)
CREDIT_RATING_A		13.9004
		(10.531)
CREDIT_RATING_BBB		19.2593*
		(10.758)
CREDIT_RATING_BB		20.2663*
		(10.732)
CREDIT_RATING_BELOW_BB		13.5942
		(10.931)
Year × industry dummies	Yes	Yes
No. of obs.	19,410	19,410
Adj. R^2	0.231	0.232

mean loan spread with the Dead Hand Proxy Put is 222.86 bps, and without the provision it is 231.96 bps. The difference is statistically significant at the 1% level.

In Panel B of Table 6, we employ regression analysis and investigate the impact of the Dead Hand Proxy Put, variable DHPP, on loan spreads after controlling for borrower and loan characteristics. The borrower characteristics include firm size, profitability, market-to-book, leverage, and cash flow volatility. Cash

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flow volatility (CASH_FLOW_VOLATILITY) is the standard deviation of cash flow over 5 years prior to the loan start date. Other variables are described in Section III. These variables are related to firm credit risk and severity of shareholder–bondholder conflicts, and thus should have an impact on loan spreads (see, e.g., Reisel (2014)). We include Altman's *Z*-score as an additional control for the credit risk.[12]

We control for loan covenants. Our control is a covenant index that is a sum of restrictions on asset sales, equity issuance, debt issuances, dividend payments, and financial covenants. It is worth noting that although some covenants, such as coverage ratios and restrictions on dividend payouts, may also be triggered by financial restructuring in the wake of successful shareholder activism, the Dead Hand Proxy Put is unique in providing a *leading* rather than *lagging* indicator of this potential change. Furthermore, without regard to the typical suite of restrictive and financial covenants, Dead Hand Proxy Puts can add value by enabling creditors to mitigate shifts toward higher risk projects which are otherwise difficult to observe or monitor (Smith and Warner (1979)). Our core finding, that the inclusion of the Dead Hand Proxy Put reduces loan spreads, remains statistically significant at the 5% level across this set of controls.

Further, we consider specifications that also include company credit ratings.[13] We obtain company credit ratings from Compustat. Company credit ratings may contain information about firm performance beyond those provided by publicly available financial ratios (see, e.g., Dichev and Piotroski (2001)). They measure the issuer's overall creditworthiness and confirm to an expected default framework. Again, the coefficient of DHPP remains negative and statistically significant.

Finally, in Table 7, we present results of propensity score matching. For each loan with the Dead Hand Proxy Put, we create a matched control using propensity scores. Propensity scores are calculated using specification 1 of Table 3. The result of the matching procedure is a subsample where loans with Dead Hand Proxy Puts and loans without Dead Hand Proxy Puts are statistically indistinguishable

TABLE 7

Loan Pricing Analysis: Propensity Score Matching

Table 7 reports the results of propensity score matching. The dependent variable is the loan spread. Propensity scores are calculated using specification 1 of Table 3. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *N* is the number of observations used to create the matched sample.

	Estimated Average Effect on Loan Spread	*Z*-Statistics	*p*-Value	*N*
DHPP	−10.3814	−3.16	0.002	23,209

[12] Altman's *Z*-score bankruptcy model is calculated as: $Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$, where X_1 equals working capital divided by total assets, X_2 equals retained earnings divided by total assets, X_3 equals earnings before interest and taxes divided by total assets, X_4 equals market value of equity divided by total liabilities, and X_5 equals sales divided by total assets.

[13] We should note that data items are often missing for covenants and company credit ratings. To avoid a significant reduction in the sample size, we include dummy variables for missing company ratings and covenants.

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across a number of characteristics. The effect of the Dead Hand Proxy Put remains negative and highly statistically significant.

B. Endogeneity Concerns

One concern with the loan pricing analysis presented above is that it does not account for the endogeneity of the Dead Hand Proxy Put. The decision to include a Dead Hand Proxy Put may be determined partially as a function of an unobservable variable that also affects other loan terms, such as loan spread. This self-selection may lead to the omitted variable problem in the loan pricing equation where DHPP is correlated with the error term and thus endogenous (Wooldridge (2002), p. 51). To overcome this problem, we start with a self-selectivity model (the treatment effects model) that incorporates endogeneity of DHPP to estimate the price effect of the Dead Hand Proxy Put (see, e.g., Greene (2002), p. 933). Appendix A describes the model in detail and presents results of the first-stage selection equation.

Our selection equation includes a set of variables presented in specification 1 of Table 3. We use the identity of the companies' law firms as our instrument. We use FactSet Shark Repellent to select law firms with particular experience in dealing with hedge fund activism. The top law firms in activist defense are: Wachtell, Skadden, Wilson Sonsini, and Latham. We create a dummy variable LAW_FIRM that takes the value of 1 if at least one of these law firms participated in the loan contract design, and 0 otherwise.

For LAW_FIRM to be a valid instrument it should satisfy the following conditions: i) changes in LAW_FIRM should be associated with changes in DHPP, but ii) changes in LAW_FIRM should not lead to changes in Y, the loan spread, aside from the indirect route via DHPP (see, e.g., Cameron and Trivedi (2005), p. 37). Law firms play an important role in contract design (see, e.g., Johnson et al. (2015)) and thus are likely to have an impact on a firm's decision to include a Dead Hand Proxy Put. It seems likely that law firms with more experience are more likely to advise their capital-raising clients to embed activist–defensive provisions than law firms with less experience in hedge fund activism. More formally, we assume that LAW_FIRM and DHPP are (partially) correlated, which satisfies the first condition (the relevance condition) for it to be a valid instrument. Indeed, results of the first stage of the treatment effects model, presented in specification 1 of Appendix A, confirm this assumption. We find that the presence of top defense law firms has a significantly positive impact on the likelihood of including a Dead Hand Proxy Put.

It is still the case that LAW_FIRM and Y, the loan spread, are likely to be correlated, but the only source of such correlation is the indirect path of LAW_FIRM being correlated with DHPP, which in turn determines Y. A direct effect of LAW_FIRM on Y is unlikely. Thus, it is plausible that LAW_FIRM also satisfies the second condition (the exclusion restriction) for it to be a valid instrument.[14]

Table 8 presents results of the second stage of the treatment effects model. Importantly, we continue to find that the Dead Hand Proxy Put reduces the cost

[14]More formally, LAW_FIRM is uncorrelated with the error ε.

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TABLE 8
Loan Pricing Analysis: Treatment Effects Model

Table 8 reports the results of the analysis of the loan-pricing impact of Dead Hand Proxy Put. The results of the second stage of the treatment effects model are provided. The dependent variable is LOAN_SPREAD. Z_SCORE is the Altman's *Z*-score. CASH_FLOW_VOLATILITY is the standard deviation of cash flow over 5 years prior to the loan start date. COVENANTS is the sum of restrictions on asset sales, equity issuance, debt issuances, dividend payments, and financial covenants. CREDIT_RATING_A – CREDIT_RATING_BELOW_BB are dummy variables for company credit ratings. Other independent variables are described in Table 1 and Section III.B of the text. The first-stage equation includes a set of variables included in specification 1 of Table 3, and Law Firm, an indicator variable for a top activism defense law firm that serves as an instrument. Specifications also include dummy variables for missing covenants and credit ratings, where appropriate. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	1	2
DHPP	−51.4035***	−50.2199***
	(11.778)	(11.791)
ln(TOTAL_ASSETS)	−8.5039***	−8.7603***
	(0.489)	(0.537)
ROA	−68.8040***	−68.5541***
	(5.099)	(5.105)
MB	2.0294***	2.2248***
	(0.640)	(0.647)
BOOK_LEVERAGE	−7.2834***	−7.7128***
	(2.639)	(2.728)
Z_SCORE	−0.0303	−0.0253
	(0.233)	(0.234)
CASH_FLOW_VOLATILITY	84.4082***	83.6479***
	(8.752)	(8.752)
ln(MATURITY) (month)	−6.0747***	−6.2946***
	(0.705)	(0.710)
ln(LOAN_AMOUNT) ($millions)	−6.6902***	−6.8967***
	(0.485)	(0.486)
COLLATERAL	11.4864***	11.6137***
	(1.138)	(1.211)
COVENANTS	−3.1232***	−3.2487***
	(0.356)	(0.357)
CREDIT_RATING_A		13.3563**
		(5.420)
CREDIT_RATING_BBB		19.3537***
		(5.258)
CREDIT_RATING_BB		19.9291***
		(5.326)
CREDIT_RATING_BELOW_BB		14.1574***
		(5.413)
Year × industry dummies	Yes	Yes
Selectivity variable	24.2173***	23.7310***
No. of obs.	19,351	19,351

of debt. The coefficients of DHPP are negative and highly statistically significant in all specifications. The economic magnitude of the effect is also substantial. Results suggest that the Dead Hand Proxy Put reduces the cost of debt by approximately 50 bps. The OLS results appear to underestimate the price effect of the provision. We should also note that the selectivity variable is significant in Table 8. This indicates that selection bias is present in our data and thus that the Dead Hand Proxy Put is unlikely to be assigned arbitrarily.

C. Additional Robustness Tests

In this subsection, we consider alternative instruments and alternative estimation techniques to investigate the robustness of our loan pricing results.

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First, we consider an additional instrument, COURT_DECISION, a dummy variable that takes the value of 0 prior to May 12, 2009, the date of the *Amylin* case, and 1 otherwise. On this date, the Delaware Court of Chancery for the first time subjected this provision to significant scrutiny, although it did *not* find the Dead Hand Proxy Put to be a breach of fiduciary duty.[15]

Amylin thus confirmed the legal status of the Dead Hand Proxy Put and its value, which in turn should impact a firm's decision to include the provision. Indeed, results of the first stage of the treatment effects model, presented in specification 2 in Table A1 of Appendix A, show that the court decision has a significantly positive impact on the likelihood of the inclusion of the provision. This court ruling, however, is unlikely to impact *Y*, the loan spread, directly, only indirectly, through its impact on DHPP.

Specification 1 of Table 9 presents results of this analysis. We continue to find that the Dead Hand Proxy Put significantly reduces the cost of loans. The coefficient of the DHPP dummy is approximately 47 bps and statistically significant at the 1% level.

Specification 2 of Table 9 shows that our results are also robust to using both instruments, LAW_FIRM and COURT_DECISION, in the treatment effects model.

Next, we consider an alternative estimation procedure for the treatment effects model; the maximum likelihood (ML) estimator. The advantage of the 2-step procedure employed so far is its greater stability and fewer assumptions concerning the distribution of the error terms. The advantage of the ML estimator is its greater efficiency (see, e.g., Cameron and Trivedi (2005), pp. 550–551). Specification 3 of Table 9 presents results using the ML estimator. We continue

TABLE 9

Loan Pricing Analysis: Additional Robustness

Table 9 reports the results of analysis of the loan-pricing impact of Dead Hand Proxy Put. The dependent variable is the loan spread. Specifications 1–3 report the results of the treatment effects model. The first-stage equations include a set of variables included in specification 1 of Table 3. Specification 1 also includes COURT_DECISION, an indicator variable for the Delaware court decision described in the text that serves as an instrument. Specification 2 also includes two instruments: COURT_DECISION and LAW_FIRM, an indicator variable for a top activism defense law firm. Specification 3 also includes LAW_FIRM. Specification 4 reports the results of the 2-step IV estimation; LAW_FIRM serves as an instrument in the first step. All specifications include a set of control variables presented in Table 8, specification 1. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Alternative Instruments		Alternative Estimation Techniques	
	Treatment Effects with One Instrument	Treatment Effects with Two Instruments	Treatment Effects ML Estimation	2-Step IV Method
	1	2	3	4
DHPP	−48.2793***	−47.9739***	−33.2492***	−42.5159***
	(12.009)	(11.645)	(3.550)	(6.646)
Control variables	Yes	Yes	Yes	Yes
Year × industry dummies	Yes	Yes	Yes	Yes
Selectivity variable	22.5903***	22.4660***	14.8767***	
F-statistic				10.06
No. of obs.	19,351	19,351	19,351	19,398

[15]Delaware is the dominant U.S. state of incorporation, and its corporate law rulings are often followed in other jurisdictions.

to find that the Dead Hand Proxy Put significantly reduces the cost of loans, by approximately 33 bps.

Finally, as an alternative method to address endogeneity concerns, we employ a 2-step instrumental variable (IV) method to estimate the loan pricing impact of the Dead Hand Proxy Put in equation (A-2) presented in Appendix A.[16] First, we estimate probit model, P(DHPP = 1|X, LAW_FIRM), and obtain the fitted probabilities, $\hat{G}_i$. Next, we estimate equation (A-2) by the 2-stage least squares (2SLS) using $\hat{G}$ as an instrument for DHPP. This 2-step IV method is more efficient than regular 2SLS in dummy endogenous variable models such as equation (A-2) (Wooldridge (2002), pp. 623–624). Specification 4 of Table 9 shows that our results are robust to using the 2-step IV method.

In summary, our analysis consistently finds evidence showing that the Dead Hand Proxy Put reduces the cost of debt, indicating that creditors value the provision. The provision thus appears to be a means of mitigating the shareholder–creditor conflict created by hedge fund activism. This is an important finding and a necessary condition for a net benefit to shareholders.

VI. Bondholder and Shareholder Reaction

In this section, we investigate the impact of Dead Hand Proxy Puts on bondholders and shareholders.

A. Bondholder Reaction

As noted above, Dead Hand Proxy Puts are much more common in loan agreements than they are in bond indentures. Bondholders are thus not the intended beneficiaries of the provision. However, because the acceleration of other indebtedness also typically triggers the cross-default provision in bonds, bondholders can also benefit from the inclusion of a Dead Hand Proxy Put in corporate loan facilities, at least insofar as the provision deters hedge fund activists from looting creditors. We thus hypothesize a positive bondholder reaction to the adoption of Dead Hand Proxy Puts in loan agreements.

Our empirical strategy for investigating the impact of Dead Hand Proxy Puts on bond value is built on an event study methodology. Here we examine changes in bond prices around the SEC filing of the loan contract, which publicly discloses both the existence of the loan and its terms. We obtain the SEC filling dates from Intelligize when available.

We use the TRACE database to obtain bond prices starting in 2002. TRACE provides bond identification information (e.g., Committee on Uniform Security Identification Procedures (CUSIP)), as well as the date of execution, the quoted price, and the yield. We follow the procedure of Dick-Nielsen (2014) in cleaning the database and use trade-weighted prices as in Bessembinder, Kahle, Maxwell, and Xu (2008). We use monthly data because few bonds trade on a daily basis and calculate bond return as the monthly change in a bond's price divided by the price of that bond at the beginning of the month. Further, we winsorize bond returns at

[16] Wooldridge ((2002), p. 554) notes that an instrumental variable method might produce consistent estimates even in the presence of selection bias.

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the 1% level to avoid the effect of outliers. We then merge the TRACE data with our sample using 6-digit company CUSIPs.

Our sample includes multiple bonds issued by the same company. Since the assumption of independence of the observations may be violated in this case, we use cluster adjusting or bootstrapping to calculate the appropriate statistics. Specifically, to calculate mean bond returns, we run OLS regressions using only the intercept and adjust standard errors for clustering at the firm level. To calculate median bond returns, we run median regressions using only the intercept and calculate robust standard errors using bootstrapping with 1,000 replications. Panel A of Table 10 presents the results of this analysis.

We find some evidence that bondholders react positively to the Dead Hand feature in loan contracts. The mean bondholder return with the Dead Hand Proxy Put is positive and statistically significant at the 5% level. In contrast, the mean bondholder return without the Dead Hand Proxy Put is insignificant. While the difference in means between the two cases is insignificant, the difference in medians is significant at the 10% level, suggesting that Dead Hand Proxy Puts included in loan contracts also mitigate conflicts of interests between bondholders and shareholders.

As an alternative method of testing bondholder reaction, we follow Klein and Zur (2011) in computing excess bond returns. We calculate excess bond return as i) the raw return of a bond when there is a Dead Hand Proxy Put present in an associated corporate loan minus ii) the raw return of a matched bond. Bessembinder et al. (2008) suggest matching based on bond rating as well as bond rating

TABLE 10

Bondholder Responses to Introduction of Dead Hand Proxy Put

Table 10 reports bondholder returns around the filing date of loan contracts. Monthly bond returns are given. Panel A reports raw bondholder returns, while Panel B reports the excess bond returns calculated using the matching procedure described in Section VI.A. Standard errors are adjusted for clustering at the firm level for mean returns. Bootstrapping is used to calculate the standard errors for median returns. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Raw Bondholder Returns

	DHPP = 0		DHPP = 1		
	No. of Obs.	Mean	No. of Obs.	Mean	Diff.
BOND_RETURN	16,993	–0.0006	1,076	0.0045**	*–0.0051*
	No. of Obs.	Median	No. of Obs.	Median	Diff.
BOND_RETURN	16,993	0.0008***	1,076	0.0012***	*–0.0004**

Panel B. Excess Bondholder Returns

	Matching Using Filing Dates and Bond Ratings		
	No. of Obs.	Mean	Median
EXCESS_BOND_RETURN	726	0.0060***	0.0047***
	Matching Using Filing Dates, Bond Ratings, and Time-to-Maturity		
	No. of Obs.	Mean	Median
EXCESS_BOND_RETURN	628	0.0048*	0.0038***

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along with time to maturity. To obtain bond rating and maturity, we supplement TRACE data with bond data from FISD. We then create two matched samples: i) For each bond with a Dead Hand Proxy Put in a related loan contract, we choose a bond from our sample that has the same bond rating (we use Moody's rating when available and Standard & Poor's (S&P) otherwise) and further require that the company issuing the matched bond has filed a loan contract not including a Dead Hand Proxy Put with the SEC in the same month; ii) For each bond with the Dead Hand Proxy Put in a related loan contract, we choose a bond from our sample that has the same bond rating and similar remaining maturity and further require that the company issuing the matched bond has filed a loan contract not including a Dead Hand Proxy Put with the SEC in the same month. Following Bessembinder et al. (2008), we create 3 brackets for remaining maturity: less than 5 years, between 5 years and 10 years, and more than 10 years.

We calculate mean and median excess returns for both matched samples and again use cluster adjusting or bootstrapping to calculate the appropriate statistics. Panel B of Table 10 presents results of this analysis. Mean and median excess returns are positive and statistically significant in both matched samples. For example, the mean excess return is 0.006 in the sample matched on bond rating and is statistically significant at the 1% level. It remains positive, at 0.0048, in the sample matched on bond rating and maturity, although the statistical significance falls to the 10% level.

In summary, our tests demonstrate that bondholders react positively to Dead Hand Proxy Puts in spite of the fact that the provisions appear in loan agreements, not bond indentures. Bondholders thus appear to enjoy some spillover effect from the creditor-protective attributes of Dead Hand Proxy Puts.

B. Shareholder Reaction and Combined Equity and Bond Returns

We test shareholder reaction to the introduction of the provision by examining equity pricing upon the filling date of loan agreements with and without the provision. We calculate cumulative daily equity return over 3 days before and 3 days after the filling date, $[-3, +3]$, and excess equity return as the stock's cumulative return minus the CRSP equal-weighted market return.

Table 11 reports mean and median equity returns for companies in our sample around the filing date of loan contracts, comparing raw and excess returns. As shown in the table, shareholders react *positively* to the filing of loan contracts with Dead Hand Proxy Puts. This reaction is statistically significant at the 5% level and, in the case of the median raw equity return, at the 1% level. However, there is no statistically significant difference in equity returns from loans with or without the provision.[17] In both cases, shareholders react positively to the filing of the loan contract, and the reaction is highly statistically significant. This suggests that shareholders might be reacting more to the extension of credit than to the presence or absence of a Dead Hand Proxy Put.

[17] In Section VI.C we document significant cross-sectional variation in shareholder reaction to the Dead Hand Proxy Put, suggesting that this insignificant result is unlikely to be attributable to measurement noise.

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TABLE 11

Shareholder Responses to Introduction of Dead Hand Proxy Put

Table 11 reports shareholder returns around the filing date of loan contracts. Cumulative daily equity returns over 3 days before and 3 days after the filling date are reported as EQUITY_RETURN. EXCESS_EQUITY_RETURN is calculated as the stock's cumulative return minus the CRSP equal-weighted market return. Standard errors are adjusted for clustering at the firm level for mean returns. Bootstrapping is used to calculate standard errors for median returns. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	DHPP = 0		DHPP = 1		
	No. of Obs.	Mean	No. of Obs.	Mean	Diff.
EQUITY_RETURN	25,056	0.011***	2,210	0.009**	0.002
EXCESS_EQUITY_RETURN	25,056	0.007***	2,210	0.008**	−0.001
	No. of Obs.	Median	No. of Obs.	Median	Diff.
EQUITY_RETURN	25,056	0.008***	2,210	0.005***	0.002
EXCESS_EQUITY_RETURN	25,056	0.003***	2,210	0.002**	0.001

In Appendix B, we perform robustness checks using an alternative window, [0, 2], and the market model to calculate excess returns. We continue to find no evidence of a negative shareholder reaction to the introduction of the provision.

We next measure the total value impact on each firm's outstanding debt and equity combined. We follow previous research (see, e.g., Billett et al. (2004), Maxwell and Stephens (2003), and Maxwell and Rao (2003)) and calculate combined monthly excess security returns for each firm. As in Billett et al. (2004), bond weights are based on the book value of long-term debt and stock weights are based on the market value of equity in the previous month. We use excess bond returns calculated using matching on filing dates and bond ratings. Given that our bond returns are monthly, we also calculate monthly excess stock return as the stock's monthly return minus the CRSP equal-weighted market return.

Table 12 reports the results of this analysis. We find evidence that the combined excess returns are positive. For example, the median return is 0.0068 and statistically significant at the 1% level. These results indicate that Dead Hand Proxy Puts create value, on average, at the firms that deploy them.

TABLE 12

Combined Excess Security Returns

Table 12 reports combined excess bondholder and shareholder returns in the month of the filing date of loan contracts. Monthly excess bond returns are calculated using matching on the filling dates and credit ratings, the procedure is described in Section VI.A. Monthly excess equity returns are calculated as the stock's monthly return minus the CRSP equal-weighted market return. COMBINED_EXCESS_RETURNS are calculated as weighted averages, where the bond weights are based on the book value of long-term debt and the equity weights are based on the market value of equity in the previous month. Standard errors are adjusted for clustering at the firm level for mean returns. Bootstrapping is used to calculate the standard errors for median returns. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	No. of Obs.	Mean	Median
COMBINED_EXCESS_RETURN	616	0.0076***	0.0068***

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C. Cross Section of Shareholder Returns

We next investigate how shareholder reaction to Dead Hand Proxy Puts varies with firm characteristics. To that end, we first restrict our sample to the loans with Dead Hand Proxy Puts. This analysis is consistent with the previous event study literature that limits the sample to firms subject to the event (e.g., Billett, King, and Mauer (2004), Maxwell and Stephens (2003), and Maxwell and Rao (2003)).

Our prior discussion suggests that Dead Hand Proxy Puts introduce both costs and benefits to shareholders. However, costs and benefits can vary across firms. For example, benefits to shareholders could be higher for firms with important counterparty relationships. Firms that interact repeatedly with the same lender and expect the relationship to continue into the future are likely to value that particular relationship. By contrast, costs to shareholders could be higher for firms where hedge funds can generate the highest gains, such as firms with large free cash flows that are not paid out to shareholders.

To proxy for valuable counterparty relationships with creditors, we create the variable REPEAT_BANKING using the following procedure. For each loan in our sample, we search all loans in DealScan by the same borrower within 5 years before or 5 years after the loan in question. We note the identity of the lead banks on these loans. For syndicated loans, following Sufi (2007), we use the field lead arranger as the criterion for classifying a bank as a lead bank. Single lender loans have a clearly identified lead bank and we designed it as such. We then set variable REPEAT_BANKING to be equal to 1 if we find existence of a repeat banking relationship with the same lead bank within our time period, and 0 otherwise.[18]

To proxy for large free cash flows that are not paid out, we examine cash holdings and dividend yield. We expect that cash holdings will be negatively related to shareholder returns upon adoption of Dead Hand Proxy Puts, while dividend yield will be positively related to shareholder returns upon adoption of Dead Hand Proxy Puts.

Specification 1 of Table 13 presents results of the relationship between shareholder return and our proxies upon introduction of the Dead Hand Proxy Put using an OLS regression. The dependent variable is excess equity return calculated as the stock's cumulative return minus the CRSP equal-weighted market return. The cumulative equity return over 3 days before and 3 days after the filling date is used. Independent variables are described in Section III.B.

We find that the coefficient of REPEAT_BANKING is positive and significant (at the 10% level), consistent with the hypothesis that the net benefits of Dead Hand Proxy Puts are relatively large for shareholders of firms with valuable creditor relationships. At the same time, we find that the coefficient of CASH is negative and highly statistically significant at the 1% level. We do not find that dividend yield is significantly related to shareholder returns.

[18]The typical loan maturity in our sample is 3 to 5 years. We expect that borrowers will renew their debt at this frequency and therefore that renewals will be captured in our window of 5 years before and 5 years after the loan in the sample.

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As noted above, our sample of loans with Dead Hand Proxy Puts is a nonrandom sample, the decision to include the provision may be related to perceived costs and benefits of the provision itself. This can lead to sample selection bias in the OLS regression. To correct for this, we reestimate the regression after incorporating estimates of inverse Mills ratios that equal $\phi(\tilde{\alpha}\Pi)/\Phi(\tilde{\alpha}\Pi)$. These ratios are calculated using specification 1 of Appendix A. Specification 2 of Table 13 presents these results.

As the table shows, our results are stronger after correcting for sample selection bias. We now find that the coefficient of REPEAT_BANKING is positive and highly statistically significant at the 1% level. Likewise, dividend yield is now positively related to shareholder returns.

In Panel A of Table 13, we consider a few additional specifications. As an alternative approach to proxy for free cash flow, we introduce the variable FCF following Lehn and Poulsen (1989), calculated as operating income before depreciation minus total income tax minus total interest expense minus total dividends divided by total assets. Specification 3 shows that free cash flow negatively relates to shareholder returns upon adoption of the provision. Overall, our results indicate that the net benefits of Dead Hand Proxy Puts are likely to be relatively

TABLE 13

Dead Hand Proxy Put and Cross-section of Shareholder Returns

Table 13 reports the results of the OLS regression analysis. The dependent variable is excess equity return, calculated as the stock's cumulative return minus the CRSP equal-weighted market return. Cumulative daily equity returns over 3 days before and 3 days after the filling date are used. The sample covers the time period from 1994 to 2014. Panel A presents results for the subsample of loans with Dead Hand Proxy Puts. Panel B presents results of OLS regressions for the full sample. REPEAT_BANKING is a dummy variable that picks up the existence of lending by the same lender 5 years before or after the loan start date. FCF is operating income before depreciation minus total income tax minus total interest expense minus total dividends over total assets. Other independent variables are described in Table 1 and Section III.B of the text. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Subsample with Dead Hand Proxy Puts

	OLS	Selection Correction			
	1	2	3	4	5
REPEAT_BANKING	0.0144*	0.0126***	0.0138***	0.0125***	0.0120***
	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)
ln(TOTAL_ASSETS)	−0.0059*	−0.0057***	−0.0035**	−0.0056***	0.0010
	(0.003)	(0.002)	(0.001)	(0.002)	(0.002)
DIVIDEND_YIELD	0.3008	0.1914*		0.2124*	0.3431***
	(0.211)	(0.111)		(0.112)	(0.121)
CASH	−0.0755***	−0.0645***		−0.0710***	−0.0575***
	(0.030)	(0.017)		(0.020)	(0.018)
PPE				−0.0070	
				(0.006)	
MB				0.0006	
				(0.002)	
FCF			−0.0511**		
			(0.023)		
Constant	0.0455*	0.0220	0.0060	0.0236	0.0772
	(0.023)	(0.016)	(0.014)	(0.016)	(0.089)
Year × industry dummies					Yes
Selectivity variable		0.0131**	0.0120**	0.0138**	−0.0501*
No. of obs.	1,878	1,854	1,779	1,854	1,854
Adj. R^2	0.018				

(continued on next page)

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TABLE 13 (continued)
Dead Hand Proxy Put and Cross-section of Shareholder Returns

Panel B. Full Sample

	1	2	3
DHPP	0.0020 (0.002)	0.0398*** (0.013)	0.0271** (0.011)
DHPP × REPEAT_BANKING		0.0134*** (0.005)	0.0115** (0.005)
DHPP × ln(TOTAL_ASSETS)		−0.0060*** (0.002)	−0.0041*** (0.001)
DHPP × DIVIDEND_YIELD		0.2460* (0.137)	
DHPP × CASH		−0.0688*** (0.018)	
REPEAT_BANKING	0.0022 (0.001)	0.0012 (0.001)	0.0017 (0.001)
ln(TOTAL_ASSETS)	0.0006 (0.000)	0.0009** (0.000)	0.0010** (0.0000)
DIVIDEND_YIELD	0.0579** (0.028)	0.0479* (0.028)	
CASH	−0.0097 (0.007)	−0.0024 (0.007)	
DHPP × FCF			−0.0463*** (0.026)
FCF			−0.0066 (0.010)
Constant	0.0100*** (0.004)	0.0081** (0.004)	0.0082** (0.004)
Year × industry dummies	Yes	Yes	Yes
No. of obs. Adj. R^2	22,906 0.008	22,906 0.009	22,980 0.008

small for shareholders of firms with large cash positions that are not paid out to shareholders.

We include firm size in all regressions. In specification 4 of Table 13, we consider additional controls. We include market-to-book (MB) on the theory that large firms with lower growth opportunities may be more likely to have free cash flow problems (Jensen and Meckling (1976)). Further, following Cremers, Giambona, Sepe, and Wang (2015), who suggest that firms with high levels of intangible assets are less likely to benefit from hedge fund activism, we control for assets tangibility using the ratio of property, plant, and equipment divided by total assets (PPE). Our results are robust to these additional controls, although neither market-to-book nor asset tangibility is statistically significant. Finally, in specification 5, we show that our results are robust to including year and industry interactive effects.

As an alternative approach to investigating how shareholder reaction to Dead Hand Proxy Put varies with firm characteristics, we consider the full sample of loans and interact DHPP dummy with firm characteristics. Panel B of Table 13 presents results of this analysis.

Consistent with the univariate analysis presented in Table 11, specification 1 shows that the shareholder reaction to the public filing of loans with Dead Hand Proxy Puts does not differ from the shareholder reaction to the public filing of loans without Dead Hand Proxy Puts after controlling for firm characteristics.

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In specifications 2 and 3 of Panel B of Table 13, we include the interaction terms and find that they are statistically significant, providing strong evidence of cross-sectional variation in shareholder reaction to Dead Hand Proxy Put. Similar to the results presented in Panel A of Table 13, we find that repeat banking is positively related to the shareholder reaction to the provision; the coefficient of DHPP × REPEAT_BANKING is positive and statistically significant. Likewise, our proxies for free cash flow problems are important in explaining the shareholder reaction. For example, the coefficient of DHPP × CASH is negative and statistically significant while the coefficient of DHPP × DIVIDEND_YIELD is positive and statistically significant.

In summary, our cross-sectional analysis demonstrates a cost-benefit tradeoff to shareholders from Dead Hand Proxy Puts.

VII. Summary and Conclusions

In this article, we investigate empirically the role and effect of the Dead Hand Proxy Put on existing claimholders. Using a large dataset of loans from 1994 to 2014, we find that the incidence of Dead Hand Proxy Puts in loan contracts has increased sharply since 2000, when hedge fund activism was also sharply on the rise. Further supporting an association between the provision and hedge fund activism, we find that companies with characteristics making them likely targets of hedge fund activists are significantly more likely to adopt Dead Hand Proxy Puts. Moreover, we find that companies are likely to adopt Dead Hand Proxy Puts in anticipation of activist interventions, and that when companies are subject to activism, peer firms in that industry are more likely to include the provision.

On the question of the effect of the provision on companies adopting it, we find economically and statistically significant evidence suggesting that the inclusion of the Dead Hand feature in loan agreements can reduce the cost of debt by up to 50 bps. Furthermore, although the provision is generally not present in bond indentures in our sample, we find evidence that the provision increases bondholder wealth. Meanwhile, shareholders, on average, are not harmed by the introduction of the provision. These results indicate that Dead Hand Proxy Puts are a contracting response to the threat of hedge fund activism that create value, on average, at the firms that deploy them. However, our cross-sectional results indicate that those firms with large free cash flows that are not paid out to shareholders may benefit less from the provision.

Appendix A. Estimation of the Treatment Effects Model

We first write the Dead Hand Proxy Put selection equation as a (reduced form) probit model as follows:

$$\text{DHPP} = \alpha_0 + \alpha_1 X' + \varepsilon', \tag{A-1}$$

where $\varepsilon' \sim N(0, \sigma'^2)$.

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TABLE A1
First Stage of the Treatment Effects Model

Table A1 reports the results of the first stage of the treatment effects model. The probability of inclusion of the Dead Hand Proxy Put in loan contracts is estimated. The sample covers the time period from 1994 to 2014. LAW_FIRM is an indicator variable for a top activism defense law firm. COURT_DECISION is an indicator variable for the Delaware court decision described in the text. The other variables are described in Table 1 and Section III.B of the text. Robust standard errors are in parentheses. Standard errors are adjusted for clustering at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	1	2	3
ln(TOTAL_ASSETS)	−0.0646***	−0.0614***	−0.0645***
	(0.010)	(0.010)	(0.010)
ROA	0.0078	−0.0063	−0.0004
	(0.147)	(0.147)	(0.147)
MB	0.0048	0.0072	0.0054
	(0.016)	(0.016)	(0.016)
BOOK_LEVERAGE	−0.3528***	−0.3470***	−0.3525***
	(0.073)	(0.072)	(0.073)
DIVIDEND_YIELD	−1.9650**	−2.0668**	−1.9180**
	(0.947)	(0.951)	(0.948)
PPE	−0.1805***	−0.1808***	−0.1787***
	(0.046)	(0.046)	(0.046)
LAW_FIRM	0.2089***		0.2086***
	(0.057)		(0.057)
COURT_DECISION		0.4008**	0.3986**
		(0.167)	(0.167)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
No. of obs.	19,351	19,351	19,351

DHPP is a dummy variable that equals 1 if a loan includes the Dead Hand Proxy Put, and 0 otherwise. We then write the loan pricing equation that includes the DHPP dummy as an explanatory variable:

$$Y = \gamma_0 + \gamma_1 X + \text{DHPP} + \varepsilon, \tag{A-2}$$

where $\varepsilon \sim \text{N}(0, \sigma'^2)$, Y represents the loan spread and X are determinates of the loan spread.

Equation (A-2) can be estimated consistently in two stages. First, parameters of equation (A-1) can be estimated consistently up to a scale factor by probit after normalizing $\sigma'^2 = 1$. We then obtain estimates of inverse Mills ratios that equal $\phi(\tilde{\alpha}\Pi)/\Phi(\tilde{\alpha}\Pi)$ for the loans with Dead Hand Proxy Puts and $-\phi(\tilde{\alpha}\Pi)/[1-\Phi(\tilde{\alpha}\Pi)]$ for the loans without Dead Hand Proxy Puts. Φ is the cumulative function of a standard normal random variable, and ϕ is its density function.

Next, equation (A-2) is estimated by OLS incorporating appropriate Mills ratios (selectivity variable). This procedure corrects equation (A-2) for the omitted variable problem. It is important to note that it is possible to estimate the treatment effect model even if X' and X are identical (i.e. without instruments). The reason is that, although the selectivity variable is the function of the same variables that enter into the loan pricing equation, it is a nonlinear function of these variables (see, e.g., Willis and Rosen (1979)). One concern with this methodology is that in a particular application there may be insufficient nonlinearity for identification. Thus, we also consider an instrument in the selection equation.

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Appendix B.

TABLE B1

Shareholder Responses to Introduction of Dead Hand Proxy Put: Alternative Specifications

Table B1 presents shareholder returns around the filing date of loan contracts. Panel A presents excess equity return calculated using the market model. Cumulative daily equity returns over 3 days before and 3 days after the filling date are used. Panel B presents shareholder returns over 3 days starting on the filling date, EQUITY_RETURN. EXCESS_EQUITY_RETURN is calculated as the stock's cumulative return minus the CRSP equal-weighted market return. Standard errors are adjusted for clustering at the firm level for mean returns. Bootstrapping is used to calculate standard errors for median returns. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Market Model

	DHPP = 0		DHPP = 1		
	No. of Obs.	Mean	No. of Obs.	Mean	Diff.
EXCESS_EQUITY_RETURN (market model)	25,056	0.007***	2,210	0.010***	−0.003
	No. of Obs.	Median	No. of Obs.	Median	Diff.
EXCESS_EQUITY_RETURN (market model)	25,056	0.0034***	2,210	0.0014	0.002

Panel B. Alternative Event Window

	DHPP = 0		DHPP = 1		
	No. of Obs.	Mean	No. of Obs.	Mean	Diff.
EQUITY_RETURN	25,056	0.003**	2,210	0.002	0.001
EXCESS_EQUITY_RETURN	25,056	0.001	2,210	0.002	−0.001
	No. of Obs.	Median	No. of Obs.	Median	Diff.
EQUITY_RETURN	25,056	0.001***	2,210	0.002**	−0.001
EXCESS_EQUITY_RETURN	25,056	0.001**	2,210	0.001	0.00

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