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Debt, debt structure and corporate performance after unsuccessful takeovers: evidence from targets that remain independent

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Abstract

Significant increases in the level of target leverage have been previously documented following unsuccessful takeover attempts. This increased leverage may signal managerial commitment to improved performance, suggesting that corporate performance and leverage should be positively related. If, however, the increased leverage leads to further managerial entrenchment, then corporate performance and leverage should be negatively related. In this paper, we reexamine both motivations for the observed increase in leverage. Furthermore, we argue that changes in the composition of debt are also important, besides changes in the level of leverage. In particular, bank debt has frequently been assigned a proactive, beneficial monitoring role in the literature. Besides confirming the increase in the level of leverage, we also document increases in bank debt surrounding cancelled takeovers. As a result, we find a more complex relation between corporate performance and debt use: Overall, the relation between corporate performance and leverage is negative, as predicted by a dominant entrenchment effect. However, increases in bank debt reduce the adverse effect of the increase in the level of leverage.

JEL classification: G32; G34
Keywords: Unsuccessful bids; Corporate performance; Level and structure of debt

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1. Introduction

It is well known that target shareholders realize substantial abnormal gains at bid announcements (Mandelker, 1974; Jensen and Ruback, 1983). Not surprisingly, when target managers reject bid offers and the takeover attempt is unsuccessful, target shares suffer price declines (we document a loss of 11% in the days surrounding the termination announcement). The foregone gains from a potential takeover, and the subsequent realized losses at the termination announcement, both imply that on average target managers who reject bids apparently do not act in the interests of their shareholders. Yet every year, a non-trivial number of acquisition attempts are unsuccessful (over 2000 acquisition proposals failed according to *SDC Worldwide M&A Database* during the 1985–1995 period), many due to resistance by target managers. As a result, a large number of targets do not experience a change in control and continue operating as independent entities. In this paper, we study the role of debt as a substitute mechanism to induce better subsequent performance in these independent firms, and to thus compensate shareholders adequately for their foregone takeover gains.

On average, targets of withdrawn takeovers tend to substantially increase their leverage during the time of the takeover attempt (Berger et al., 1997). The evidence on the ultimate value impact of these increases in leverage levels is mixed. Safieddine and Titman (1999), henceforth ST, claim that, by increasing leverage, managers may not only thwart takeovers, but because of the additional debt burden they also commit themselves to value-enhancing improvements just as proposed by potential raiders (consistent with the disciplinary effects of debt, Jensen, 1986). Furthermore, they find that there is a positive relation between the targets' subsequent long-term performance and their leverage, as predicted by the "disciplinary" hypothesis. This, of course, still does not explain why stock prices of their leverage-increasing targets fall at announcements of bid withdrawals.

There are in fact several reasons to re-examine the performance-leverage relation for targets with withdrawn bids. In contrast to ST, earlier work by Dann and DeAngelo (1988) assigns just the opposite role to debt. According to this alternative view, managers use debt to entrench themselves. Thus, as suggested by Stulz (1988) and similarly by others such as Harris and Raviv (1988) and Israel (1992), shares of outside investors with a low reservation price can be bought out with funds raised with new debt, leaving more voting power with incumbent management and with shareholders having higher reservation prices. As a result, a successful bidder must pay a higher premium to take over a highly levered target to induce shareholders to tender, making leverage effectively an entrenchment device.[1] Consistent with this,

[1] Palepu (1986) finds that targets with higher leverage are less likely to be taken over. Roe (1987) argues that debt also serves as an impediment to acquisition efforts by bidders, especially if the debt is risky and/or consists of numerous issues (making any consensus on the part of bondholders more difficult to achieve). Roe claims that just the large sums of debt, with their substantial acquisition costs, might have been among the primary reasons why large under-performing companies of the 1980s such as Chrysler, Dome Petroleum and General Harvester, were not taken over. Billett (1996) also shows that targets with lower-rated debt are less likely to be successfully acquired (due to gains to the debtholders upon acquisition).

Dann and DeAngelo document the use of a wide range of leverage-increasing devices by target management to defeat takeover attempts. Dann and DeAngelo are not alone in arguing that shareholders lose out when managers defeat a takeover bid, and the firm remains independent (Bradley et al., 1983; Easterbrook and Jarrell, 1984; Jarrell, 1985). This is suggestive of an "entrenchment" hypothesis that predicts a negative performance-leverage relation. More recently, supportive of this view, Garvey and Hanka (1999) report decreases in leverage among companies incorporated in states that have adopted stronger anti-takeover laws. To the extent that both leverage and these laws can be viewed as alternative anti-takeover mechanisms, these findings also suggest that entrenchment motives may lie behind increases in leverage by targets. It should also be noted that changes in leverage for targets with failed bids are more likely to be control related, unlike successful takeovers where a coinsurance effect can lead to an increase in debt capacity (Ghosh and Jain, 2000).

To better understand the performance-leverage relation, recent literature suggests taking into account the type and nature of creditors of the target firm, whereas the implied assumption in ST and Dann and DeAngelo is that all debt is homogeneous and passive. Target equity holders are then seen as using "other people's money," namely that of creditors, for solely their own welfare. Real world debt, however, is supplied by a variety of creditors with differing motives, characteristics and proactive agendas to protect their investments (Fama, 1985; Berlin and Loeys, 1988; Diamond, 1991; Rajan, 1992; Sharpe, 1990; Chemmanur and Fulghieri, 1994; Datta et al., 1999). In general, it has been argued that banks have relatively better monitoring abilities, compared to other providers of debt capital (Fama, 1985; Houston and James, 1996), and that this monitoring beneficially affects the borrower's performance. Supporting this hypothesis with immediate market reactions, James (1987) reports a significant 1.93% average abnormal return to the shares of borrowing firms at the announcement of a new bank loan, while announcements of new public bond issues lead to insignificant value changes and announcements of private non-bank loans adversely affect share prices. Lummer and McConnell (1989) and Billett et al. (1995) also report positive stock price reactions at announcements of bank loans. Hadlock and James (1997) argue that increases in bank debt can be considered a signal. The superior monitoring abilities of banks should lead firms with favorable information about their future profitability to issue bank debt to minimize adverse selection-related issuance costs. Issuance costs are expected to be higher for other debt holders because of their inability to assess the firm's future prospects. Krishnaswami et al. (1999) find that firms subject to wide information asymmetry with positive information about future prospects carry greater proportions of private debt.

While both bond and bank financed increases in leverage can be used to eliminate free cash flows (disciplinary hypothesis), or to concentrate managerial shareholdings and thus enhance their bargaining power and entrenchment (entrenchment hypothesis), increases in debt derived from bank loans (in contrast to private non-bank or public loans) are less likely to further management's entrenchment agenda. As a result, a "structure of debt" hypothesis predicts that the relation between long-term performance and leverage is altered by the presence of bank debt, adding a positive effect on

the performance-leverage relation irrespective of whether the overall leverage impact is negative (entrenchment) or positive (disciplinary).

Furthermore, since in effect we are interested in the corporate governance impact of leverage, we pay attention to the stock ownership structure because it can serve as a supplement or substitute for debt (Agrawal and Knoeber, 1996; Gillan and Starks, 2000; Morck et al., 1988; etc.). In particular, for leverage-decreasing targets, the stock ownership structure may be an important substitute governance mechanism. Thus, we also take into account stock ownership structure in our analysis, including stakes held by institutions and insiders.

Based on a sample of 255 target firms with unsuccessful takeover attempts from the period 1985–1995, our main findings are:

(1) *Leverage and long-term target performance:* target's total leverage is significantly negatively related to long-term stock performance of target firms that stayed independent following the takeover.[2] On average, leverage-increasing targets underperform their leverage-decreasing counterparts by 60% over 5 years. This result supports the dominant effect of leverage as a managerial entrenchment device, as predicted by Dann and DeAngelo (1988).
(2) *Source of debt and long-term target performance:* leverage-increasing firms with primarily increases in bank leverage (bank debt/total assets) have significantly less negative long-term performance compared to the firms with leverage increases mainly due to non-bank sources. Similarly, firms with net positive issues of debt perform significantly better if a relatively larger proportion of the new debt comes in the form of bank debt compared to the alternative sources of debt (public or private non-bank debt). These results are consistent with the expected superior monitoring abilities of banks compared to other classes of debt providers.
(3) *Long-term target performance and changes in ownership structure:* institutional ownership tends to increase in leverage-decreasing targets. No change in institutional ownership was observed for leverage-increasing counterparts. Interestingly, increase in institutional ownership is significantly positively related to long-term target performance in our sample.

Our study provides a contrasting approach to ST regarding the role of targets' debt in takeovers. Some targets may use leverage as a *tactical* device to improve their bargaining position to obtain better terms for their shareholders.[3] Alternatively, in a role we examine here, debt can be viewed as a long-term *strategic* device to ensure that the

[2] Throughout our paper, we use terms 'leverage' and 'total leverage' interchangeably. The definition of (total) leverage is: total debt/total assets, where total debt=long-term debt+debt in current liabilities.

[3] Stulz (1988) and Harris and Raviv (1988) show that leverage increases can be used as a form of an anti-takeover device in order to extract greater gains for target shareholders. Billett and Ryngaert (1997) find empirical evidence for this claim. As it has been argued for other anti-takeover devices, such as for poison pills (Malatesta and Walkling, 1988; Ryngaert, 1988; etc.), critics charge that such devices entrench managers, while supporters claim that the devices allow targets to obtain more favorable terms.

firm remains independent. ST's sampling procedure is tilted towards studying the short-term role of leverage in extracting a better deal in an ultimately successful takeover. Nearly half of ST's targets are subsequently taken over within 5 years, with a majority of them acquired within the first 2 years after the failed bid. Also, their sample includes targets that are involved in subsequently successful multiple-bidder acquisitions.[4] Thus, the failure of a takeover attempt in their case may merely mean a decision to go with a different acquirer. Consequently, the positive relation between leverage and stock performance reported by ST may be explained by increases in stock prices in anticipation of takeover premiums.

We, on the other hand, are interested in "truly" terminated takeovers, where the target continues to operate as an independent entity. We want to examine the impact of an increase in debt on the target's long-term performance (due to debt's disciplinary role vs. the use of debt as an anti-takeover device for entrenchment purposes). In addition, we study how the *structure* of debt can alter the nature of monitoring and, consequently, long-term performance in the years after the failed bid. Thus, we design our study differently from ST. Unlike ST, we strictly exclude any target with an indication of an impending acquisition (e.g., presence of rivals, white knights, etc.). We also require targets to stay independent at least until the second fiscal year to improve the likelihood of identifying failed takeover attempts rather than merely delayed takeovers. Finally, whereas ST do not put any restrictions on the size of the ownership structure sought by the bidder, we consider only those bids in which the bidders sought control (i.e., acquisition attempts where the bidder aims at 50% or more of the target's stock). Our sample is thus more likely to include targets where control was at stake and where the target managers eventually used leverage changes to achieve long-term independence.[5] Thus, we have the setting to compare the disciplinary versus entrenchment effects of debt on long-term performance of targets following withdrawn offers.[6]

Next, we describe our data and sample. We study the impact of leverage changes on target corporate policies in Section 3. Section 4 provides an analysis of changes in ownership structure. We examine the relation between changes in debt levels and structures and long-term stock performance of targets of cancelled takeovers in Section 5. We also examine bond prices and ratings surrounding cancelled bids. Implications of our findings and concluding remarks are provided in Section 6.

[4] The ST sample thus likely includes a significant number of targets where managers were aware of alternative acquirers and probably used leverage to extract extra takeover gains in successful takeovers involving multiple bidders. This may also "hardwire" ST's finding of a positive relation between long-term stock price performance and leverage, since multiple bidder contests are likely to push up share prices.

[5] In addition, our study uses a different database (*SDC Mergers and Acquisitions* vs. ST's *Mergerstat*) and different periods (we study mergers cancelled during 1985–1995, ST use years 1982–1991) to identify the sample. Nevertheless, the analysis of 1985–1991 subperiod in our study yields the same basic result (leverage-increasing targets of withdrawn takeover attempts underperform) that we find for our full sample.

[6] Multiple robustness checks discussed in Section 5 are designed to minimize the possibility that our major results (most importantly, long-term underperformance of leverage-increasing targets) are driven by our sampling procedure and the requirement that targets stay independent for more than one year following the takeover attempt.

2. Data

2.1. Sample identification and descriptive statistics

Our sample of unsuccessful takeover targets is drawn from the *SDC Worldwide M&A Database.* In order to be included in our sample, the bidder must seek majority control over the target and the withdrawal date must fall between 1985 and 1995. To eliminate targets of successful takeovers involving multiple bidders, the mergers must have no indication of impending successful acquisition (such as 'sold to the rival', 'sold to alternative bidder' or 'sold to white knight', etc.). Targets have to be listed on NYSE, AMEX or NASDAQ, and must have certain data available on Compustat. Out of 777 targets satisfying the above criteria, 588 targets had leverage data available on Compustat for the first fiscal year-end before the announcement (henceforth, year −1) and for the second fiscal year-end after the year of termination (henceforth, year +2). Next, we narrow our sample to the 451 targets with the first occurrence of a failed takeover attempt, in order to avoid firms that tactically reject offers so as to entertain other better offers later, and to avoid double counting the same firm in our sample. Of these acquisition attempts, there are 368 cases left after excluding targets that are financial firms (SIC code 6) or utilities (SIC code 49). For the sample of 368 targets, we search *Moody's* manuals for information on debt ownership structure for both year −1 and year +2. We are able to find such information for 320 targets. Further, we find that only 299 of these targets had some outstanding debt either before or after the acquisition attempt. In a final screen, we eliminate 35 targets where the bidder itself is listed as "seeking buyer" and another 9 targets that had no data on CRSP tapes. Our final sample consists of 255 takeover targets.

Table 1 reports the data on the yearly and industrial distributions of takeovers in our sample. According to panel A, most of the unsuccessful acquisitions in our sample occurred in the late 1980s. Panel B shows that the sample involves companies from a vast cross-section of industries, even though manufacturing firms are the most prevalent. Panel C shows that 74 out of our 255 targets delist within 5 years of the withdrawal of a takeover bid. Fifty-one (20%) targets end up being taken over by another bidder.[7] The identity of the party causing termination and the reasons for withdrawal are discussed in panel D. Even though most of the acquisitions were terminated by the bidder, overwhelmingly the failure was due to the opposition or resistance by the target (stated reason in 80% of the cases with a known reason for withdrawal).

Table 2 reports several financial characteristics of target firms. Panel A shows data for the full sample of 255 targets separately for years −1 and +2. Panel B describes similar data separated into 2 subsamples—150 targets that increased and 105 targets that decreased their leverage in the period between years −1 and +2, respectively.[8] The ratio of

[7] In contrast, ST report that 278 out of their initial sample of 573 targets (48%) are taken over within 5 years after the initial acquisition withdrawal. However, we specifically exclude transactions with any indication of existing competing bidders at the time of termination. In addition, ST place no restrictions on the number of shares the bidder is seeking, whereas we consider only transactions where a bidder attempts to acquire majority control (i.e., deals where the target managers have the strongest incentives to survive).

[8] Due to the annual nature of accounting data, the length of the interval (year −1, year +2) varies across firms. Typically, though, the length of the interval is 2 years (median=2 years, mean=2.28 years).

Table 1
Distribution of takeover targets

Panel A: Distribution of targets by announcement year

Withdrawal year	Number of targets	Withdrawal year	Number of targets
1985	24	1991	12
1986	27	1992	14
1987	34	1993	12
1988	39	1994	11
1989	37	1995	23
1990	22		
Total			255

Panel B: Distribution of targets by SIC code ranges and most frequent SIC codes

SIC code range	Number of targets	SIC code	Number of targets
0100–0999	1	35 (industrial, comm. machinery, comp. eq.)	19
1000–1999	17	28 (chemicals and allied products)	16
2000–2999	50	36 (electronic equipment)	15
3000–3999	87	73 (business services)	14
4000–4999	23	38 (meas. instr., photo goods, watches)	12
5000–5999	40	34 (fabr. metals, machinery, transportation equipment)	11
7000–7999	21	20 (food and kindred products)	9
8000–8999	16	45 (transportation by air)	9
		80 (health services)	9
		29 (petroleum refinement)	7
		37 (transportation equipment)	7
		53 (general merchandise stores)	7
Total	255		134

Panel C: Distribution of delisted targets

Months after withdrawal	Reason for delisting					Total
	Merger	Insufficient capital	Bankruptcy	Exch. listing guidelines	Other/ unknown	
13–24	8	3	0	2	1	14
25–36	20	1	1	1	2	25
37–48	14	2	4	2	1	23
49–60	9	2	1	0	0	12
Total	51	8	6	5	4	74

Panel D: Distribution by the identity and reason of termination

	No. of firms	Percentage
Rejected by target	66	25.9
Terminated by bidder	173	67.8
Mutually terminated	16	6.3
Total		100
Target rejected offer as inadequate	76	29.8
Target used anti-takeover defense	40	15.7
Other target resistance	27	10.6
Hostile takeover	62	24.3

Table 1 (*continued*)

Panel D: Distribution by the identity and reason of termination		
	No. of firms	Percentage
Termination by target or motivated by target resistance (rejected by target, offer determined inadequate by target, hostile takeover, target used anti-takeover defense or showed other types of resistance)	162	63.5
Termination due to bidder (financing problems, market conditions, adverse performance, price too high)	30	11.8
Reason not disclosed	63	24.7
Total		100

Sample description of 255 targets of cancelled takeover attempts. The bidder must seek majority control over target. Targets must stay independent until at least the second fiscal year-end following the withdrawal date. Accepting an alternative offer from another bidder cannot be a reason for withdrawal. Identity and reasons for takeover termination are taken from acquisition synopses collected from *SDC Mergers and Acquisitions* database.

total liabilities to assets increases significantly over time. The mean liability ratio increases by 9.36%, while the median increases by 4.81%. Although significant, these figures are smaller than the increases reported by ST (who report an increase in mean (median) of 15.6% (11.7%)). A likely reason is that their sample size decreases over time. ST document that the likelihood of delisting of targets in their sample decreases with leverage. Thus, their reported mean and median liability ratios may increase over time even without any significant inter-temporal increases in the liability ratios for the individual firms remaining in the sample.

For the sample of leverage increases, cash reserves, capital expenditures and working capital significantly decrease over time. In contrast, cash reserves and working capital increase over time for the subsample of leverage-decreasing companies (capital expenditures still significantly decrease even in this subsample). The decreases are consistent with the role of debt as an eliminator of cash flows. Leverage-increasing companies have stricter obligations to pay out cash flows in the form of increased debt payments. As a result, these firms may be forced to maintain lower cash reserves, decrease new net working capital and decrease capital spending. The finding that even leverage-decreasing targets lower their capital expenditures is somewhat surprising. It suggests that even leverage-decreasing targets are able to cut potentially wasteful (capital) spending without the need to over-lever, possibly due to a strengthening of other alternative governance mechanisms after the takeover termination. As the results in panel B show, on average, leverage-increasing targets create significantly lower amount of cash flows after the unsuccessful acquisition attempt. In addition, they also tend to move significantly closer to financial distress. On the other hand, the ability to generate cash flows increases, and the likelihood of financial distress decreases in the subsample of targets lowering their leverage.[9] Since the leverage-increasing cases

[9] Cash flows are measured using Lehn and Poulsen's (1989) formula: FCF/asset=[oper. before depr.−(taxes−change in deferred taxes)−int. expenses−pref. dividends−comm. dividends]/assets. The likelihood of financial distress is measured using the modified *Z*-score formula (Graham et al., 1998): *Z*=1.3*(operating income after depr./assets)+(sales/assets)+1.4*(retained earnings/assets)+1.2*(working capital/assets). *Z*-score is an inverse measure of financial distress, i.e., firms with a lower *Z*-score are more likely to suffer financial distress.

Table 2
Summary statistics for sample firms

Panel A: Summary financial statistics

	N	Mean	Median
Total assets$_{-1}$ ($ million)	255	1393.3	165.4
Total assets$_{+2}$ ($ million)	255	1308.6	156.0
Total liabilities/assets$_{-1}$	255	0.5455	0.5603
Total liabilities/assets$_{+2}$	255	0.6392***	0.6122***
Cash reserves/assets$_{-1}$	255	0.1102	0.0549
Cash reserves/assets$_{+2}$	255	0.1045	0.0515
Working capital/assets$_{-1}$	250	0.2491	0.2467
Working capital/assets$_{+2}$	246	0.2265*	0.2283**
Capital exp./assets$_{-1}$	254	0.0799	0.0566
Capital exp./assets$_{+2}$	253	0.0693**	0.0507***
Cash flows/assets$_{-1}$	250	0.0557	0.0615
Cash flows/assets$_{+2}$	249	0.0289**	0.0590*
Z-score/assets$_{-1}$	250	2.1613	2.1830
Z-score/assets$_{+2}$	246	1.8352***	2.0115***

***, **, *: statistically significantly different from the levels in year −1 at 1%, 5% and 10% levels, respectively.

Panel B: Summary financial statistics—leverage increases vs. leverage decreases

		Year −1	Year +2	Difference	*N*
Leverage increases					
Total assets	Median	178.4	166.2	−0.2	150
	Mean	1214.1	1289.3	75.2	150
Cash reserves/assets	Median	0.0546	0.0421	−0.0053^{oo}	150
	Mean	0.1089	0.0850	−0.0239^{ooo}	150
Working capital/assets	Median	0.2500	0.1974	−0.0343^{ooo}	142
	Mean	0.2581	0.1945	−0.0696^{ooo}	142
Capital exp./assets	Median	0.0610	0.0547	−0.0078^{o}	149
	Mean	0.0837	0.0757	−0.0085	149
Cash flows/assets	Median	0.0625	0.0520	−0.0285^{ooo}	147
	Mean	0.0671	0.0180	−0.0498^{ooo}	147
Z-score/assets	Median	2.2085	1.8930	−0.3185^{ooo}	143
	Mean	2.3132	1.8039	−0.5646^{ooo}	143
Leverage decreases					
Total assets	Median	141.6	131.5	−7.3^{o}	105
	Mean	1649.4	1336.2	−313.2*	105
Cash reserves/assets	Median	0.0556	0.0809**	0.0029**	105
	Mean	0.1121	0.1323**	0.0201^{o},***	105
Working capital/assets	Median	0.2221	0.2883*	0.0118***	103
	Mean	0.2364	0.2710**	0.0336^{oo},***	103
Capital exp./assets	Median	0.0505	0.0477	−0.0036^{oo}	104
	Mean	0.0744	0.0601	−0.0143^{oo}	104
Cash flows/assets	Median	0.0605	0.0705**	0.0165^{ooo},***	102
	Mean	0.0392**	0.0446	0.0081**	102
Z-score/assets	Median	2.1220*	2.3260**	0.1570^{oo},***	103
	Mean	1.9480**	1.8786	−0.0673*	103

^{ooo}, ^{oo}, ^{o}: statistically significantly different from zero at 1%, 5% and 10% levels, respectively.
***, **, *: statistically significantly different from the sample of leverage increases at 1%, 5% and 10% levels, respectively.

Table 2 (*continued*)

Panel C: Events increasing financial distress surrounding the acquisition attempt

Event	Number of targets experiencing	Proportion of the sample (N=255) (%)
Default	5	2.0
Covenant violation	41	16.1
Public debt downgrades	25[1]	9.8
Auditor doubts about "going concern" status	10	3.9
At least one event	50	24.7

[1]Out of 63 targets with rated publicly traded debt both before and after the acquisition attempt, 25 targets (40%) experienced debt downgrading, while only 9 targets (14%) had their public debt upgraded.

Panel D: Target abnormal returns surrounding termination date

	N	Relative to termination date				Announcement (a) to termination (t) date	
		(−1, +1)		(−5, +5)		(a−5, t+5)	
		Median	Mean	Median	Mean	Median	Mean
Full sample	254	−0.0471	−0.0870	−0.0693	−0.1115	0.0242	−0.0221
Leverage increases	150	−0.0477	−0.0873	−0.0741	−0.1074	0.0234	−0.0190
Leverage decreases	104	−0.0389	−0.0866	−0.0627	−0.1173	0.0385	−0.0265
Leverage increases due to banks	90	−0.0477	−0.0839	−0.0644	−0.0942	0.0313	−0.0103
Leverage increases due to non-banks	60	−0.0514	−0.0924	−0.1054	−0.1273 *	0.0083	−0.0320

All abnormal returns relative to termination date significant at 1% level. None of the abnormal returns from announcement to termination date significant at 10% level. *Difference between abnormal returns for targets with leverage increases due to banks and due to non-bank lenders statistically significant at 10% level.

Sample summary financial statistics for 255 targets of cancelled takeover attempts collected from *SDC Worldwide M&A* database are obtained from Compustat tapes, 1985–1995. Year −1 denotes the closest fiscal year prior to the acquisition announcement. Year +2 denotes the second earliest available fiscal year after the withdrawal date. Abnormal returns are computed using the market model. Parameters of the market model are estimated using returns from 220 to 21 days before the takeover termination date. Leverage increase is primarily due to banks if bank leverage increased relatively the most between years −1 and +2. Statistical significance (based on time-series differences in variables for each firm) computed using t-test (mean), signed-rank test (median of one sample) and Wilcoxon rank-sum test (difference of medians between two samples).

have a higher cash flows-to-assets ratio prior to the takeover attempt, it is unlikely that the inferior post-performance of higher leverage targets was because of a selection bias for under-performing firms (Ghosh, 2001).

Panel C of Table 2 documents the riskiness of target debt. During the acquisition attempt, one quarter of all targets experience some event that is likely to negatively affect their debt value. Most frequently, target firms are unable to meet restrictive debt covenants. Also, public debt of targets is often downgraded around unsuccessful acquisition attempts (out of 63 targets with rated publicly traded debt *both* before and after acquisition attempts, 40% of the firms had their bonds downgraded). These results underscore the crucial importance of debtholder monitoring.

Panel D reports abnormal returns to target shareholders surrounding the dates of the termination of the takeover attempts. On average, target companies that survive after

cancelled takeovers experience significant losses. The median and mean abnormal returns from 5 days before to 5 days after the termination announcement are −6.93% and −11.15%, respectively. Abnormal returns of leverage-increasing targets are generally more negative than those of leverage-decreasing targets (though the differences are not statistically significant).[10] The most negative abnormal returns are realized by targets increasing their total leverage primarily due to an increase in non-bank (public bonds or private non-bank) leverage. The abnormal returns from the announcement until the termination date are insignificantly different from zero (median and mean returns are +2.42% and −2.21%, respectively). Table 1 shows that over 80% of takeover attempts (with a known reason for termination) fail due to target's resistance. Thus, it is not surprising that by the termination announcement, on average, the effect any potential takeover premium has dissipated.

Changes in targets' leverage as well as adjustments in debt amounts outstanding surrounding unsuccessful takeovers are examined in Table 3. We find that leverage increases dramatically from years −1 to +2. The mean leverage increases by 5.51%, while median leverage rises by 5.76%. These values are comparable to the leverage increases reported by Berger et al. (1997) for a sample unsuccessful acquisitions involving *Forbes 500* companies (their reported changes in median and mean leverage are 4.6% and 11.9%, respectively).[11] Both sample mean and median stay above the levels for year −1 for each of the 5 years following the acquisition attempt. The pairwise differences between years −1 and +5 are not statistically distinguishable from zero. This suggests that companies that drop off from the sample (via takeover or other reasons) tend to have smaller leverage levels (a similar observation is also made by ST).

Panel B reports industry-adjusted leverage changes (measured as the company's leverage minus the median leverage for the company's two-digit SIC industry). While the leverage of target companies is not different from the industry leverage prior to the acquisition attempt, the median leverage rises up by 4.53% above the leverage of the industry by year +2. The firms that increase leverage tend to be under-levered prior to the acquisition attempt, and they end up substantially over-levered (median leverage is 7.81% above the industry value) following the takeover attempt. The situation is opposite for leverage-decreasing firms.

Panel C documents the differences in leverage increases for subsamples of 193 friendly and 62 hostile takeovers attempts. The results provide support for an entrenchment role to increases in leverage. Pre-takeover leverage is not statistically different for the two subsamples. Yet, hostile takeover targets tend to raise leverage significantly more compared to targets with friendly takeovers. Median leverage for hostile takeover targets increases by 9.77% and the median sample leverage increase is 6.96%. The corresponding values are only 5.16% and 0.62%, respectively, for friendly takeovers.

[10] These results differ from those presented by ST who report that leverage-increasing targets in their sample experience significantly less negative abnormal returns than targets that decrease their leverage around the time of cancelled acquisition attempts.

[11] It is not possible to compare the leverage increase in this sample to that in the sample of ST, since their study focuses entirely on the changes in liability (not leverage) ratios.

Table 3
Analysis of leverage value changes surrounding cancelled takeovers

Panel A: Time series of targets' leverage levels

		Year −1	Year +2	Year +3	Year +5
Levels	Median	0.2531	0.3107	0.2852	0.2734
	Mean	0.2627	0.3178	0.3087	0.2920
Difference	Median		0.0207***	0.0173**	0.0080
w.r.t. −1	Mean		0.0551***	0.0481***	0.0282
N		255	255	228	173

***, **, *: leverage differences significantly different from zero at 1%, 5% and 10% levels, respectively.

Panel B: Changes in target's industry-adjusted leverage levels surrounding the acquisition attempt

		Year −1	*p*-value	Year +2	*p*-value	Difference	*p*-value	*N*
Industry-adj. leverage	Median	−0.0077	0.686	0.0453	<0.001	0.0193	<0.001	255
	Mean	0.0115	0.290	0.0629	<0.001	0.0513	<0.001	255
Industry-adj. leverage	Median	−0.0354	0.041	0.0781	<0.001	0.0915	<0.001	150
(leverage increases)	Mean	−0.0174	0.208	0.1293	<0.001	0.1467	<0.001	150
Industry-adj. leverage	Median	0.0384	0.003	−0.0517	0.043	−0.0604	<0.001	105
(leverage decreases)	Mean	0.0529	0.002	−0.0319	0.029	−0.0848	<0.001	105

Panel C: Changes in targets' leverage levels surrounding the acquisition attempt—friendly vs. hostile takeovers attempts

		Year −1	Year +2	Difference	*p*-value	*N*
Leverage (friendly	Median	0.2476	0.2992	0.0062	0.090	193
takeovers)	Mean	0.2671	0.2922	0.0250	0.024	193
Leverage (hostile	Median	0.2581	0.3558**	0.0686***	<0.001	62
takeovers)	Mean	0.2489	0.3976**	0.1487***	<0.001	62

***, **, *: differences between friendly and hostile samples significant from zero at 1%, 5% and 10% levels, respectively.

Panel D: Targets' debt levels around acquisition attempts

		Year −1	Year +2	Difference	*p*-value	*N*
Total debt—full sample	Median	34.99	34.36	1.55	0.001	255
($ million)	Mean	318.52	420.10	101.57	0.010	255
Total debt—no distress	Median	35.64	36.31	2.26	<0.001	205
($ million)	Mean	365.99	495.49	129.49	0.008	205
Total debt—financial	Median	21.11	20.07	−0.87**	0.495	50
problems ($ million)	Mean	123.88***	110.98***	−12.90*	0.262	50

***, **, *: differences between no distress and financial problems samples significant from zero at 1%, 5% and 10% levels, respectively.

Leverage changes presented for the sample of 255 targets of cancelled acquisition attempts between 1985 and 1995. Year −1 denotes the closest fiscal year prior to the acquisition announcement. Years +2 (+3, +5) denote the second (third, fifth) earliest available fiscal year after the withdrawal date. Leverage changes are measured as the difference in ratios of total debt to total assets between years −1 and +2. A target is said to have financial problems if one of the following happens between years −1 and +2: company's public debt was downgraded, company failed to satisfy some of the restrictive covenants, the auditor expressed worries about the company's ability to function as a going concern or company defaulted on debt. Statistical significance (based on time-series differences in variables for each firm) computed using *t*-test (mean), signed-rank test (median of one sample) and Wilcoxon rank-sum test (difference of medians between two samples).

Total leverage can increase not only if total debt increases, but also if book value of assets decrease. Thus, leverage increases do not guarantee that debt levels are higher as well. We document the debt changes in panel D. Its top portion shows that debt levels also increase significantly. The median debt increase is $1.55 million. However, poorly performing firms are likely to have problems in raising additional debt. We show that the value of total debt outstanding actually decreased for the fifty targets that experienced adverse events (increases in the risk of default, see panel C of Table 2).

2.2. Target debt structure: data collection and descriptive statistics

Since a machine-readable database of debt ownership structures is not available, we hand-collected this data from *Moody's Manuals*, which use *10K* forms as the source of their data. The information reported by *Moody's* includes the following important items: the amount of debt, the source of debt (public vs. bank vs. private non-bank debt) and Moody's rating of the public debt. We also collected information on the unused and available lines of credit.

In some cases, *Moody's Manuals* indicate that the debt is privately owned but do not identify the lender (a bank vs. a private owner). In those cases, we follow Houston and James (1996) and define bank borrowing broadly to include borrowing referred to as "bank" borrowing, as well as private borrowing where the identity of the lender is not revealed. We define private non-bank borrowing as private debt provided by lenders unaffiliated with a bank. Such lenders can be private financial institutions (e.g., insurance companies, pension funds), private investors, development and other agencies, cities, communities, governments, etc. As a result of this classification, the bank borrowing measure is likely to overstate the actual amount of borrowing from banks. Following Houston and James (1996) and Hadlock and James (1997), we exclude short-term debt (other than long-term debt in current liabilities) from our debt measures in order to avoid changes in debt due to working capital needs.

Table 4 provides descriptive statistics concerning debt structures for our sample of 255 targets of unsuccessful acquisition attempts. Bank debt is the most prevalent form of debt financing for our sample of targets. As many as 243 firms in our sample had some debt outstanding, either before or after the takeover attempt. The mean and median proportions of bank debt to total debt for the full sample are 0.54 and 0.55, respectively, in year −1. Private non-bank debt is the second most frequent source of debt, with mean and median proportions in year −1 equal to 0.26 and 0.11, respectively.[12]

Not all targets simultaneously use all classes of debt. For example, only 92 (36%) out of the 255 targets issue public debt. Panel B reports debt proportions only for subsamples of firms actually using a particular debt ownership class in their capital structure. The results show that, when public debt is used, it is a significant source of financing. For firms with

[12] Targets in our study have relatively higher proportions of private non-bank debt compared to those reported by Houston and James (1996) (mean and median proportions of private non-bank debt are 0.13 and 0.01, respectively, in their sample). The reason is that, unlike Houston and James, we do not exclude capital leases from the definition of total debt. Instead, we consider them a part of private non-bank debt. When we exclude capital leases from the debt definition, the proportions of all debt classes are very similar to those in Houston and James.

Table 4
Analysis of debt structure changes surrounding cancelled takeovers

Panel A: Debt structure—full sample

		Year −1, 246 obs.	Year +2, 249 obs.	*N*
Bank debt/total debt	Median	0.5538	0.6490	255
	Mean	0.5487	0.5743	255
Public debt/total debt	Median	0.0000	0.0000	255
	Mean	0.1882	0.1912	255
Private non-bank debt/ total debt	Median	0.1120	0.0935**	255
	Mean	0.2629	0.2343	255

		Year −1, 255 obs.	Year +2, 255 obs.	*N*
Bank debt/total assets	Median	0.1027	0.1263***	255
	Mean	0.1336	0.1707***	255
Public debt/total assets	Median	0.0000	0.0000**	255
	Mean	0.0679	0.0826**	255
Private non-bank debt/ total assets	Median	0.0210	0.0140*	255
	Mean	0.0610	0.0645	255

***, **, *: statistically significantly different from the year −1 values at 1%, 5% and 10% levels, respectively.

Panel B: Debt structure—non-zero proportions in year −1, year +2 only

		Year −1	*N*	Year +2	*N*
Bank debt/total debt	Median	0.6183	226	0.7005	232
	Mean	0.5973	226	0.61647	232
Public debt/total debt	Median	0.5773	83	0.5771	86
	Mean	0.5578	83	0.5538	86
Private non-bank debt/ total debt	Median	0.2286	187	0.1915**	184
	Mean	0.3459	187	0.3171	184
Bank debt/total assets	Median	0.1177	226	0.1504***	232
	Mean	0.1508	226	0.1876***	232
Public debt/total assets	Median	0.1708	83	0.2042**	86
	Mean	0.2088	83	0.2449**	86
Private non-bank debt/ total assets	Median	0.0431	187	0.0418*	184
	Mean	0.0832	187	0.0894	184

***, **, *: statistically significantly different from the year −1 values at 1%, 5% and 10% levels, respectively.

Panel C: Debt structure—leverage increases vs. leverage decreases (non-zero proportions in year −1, year +2 only)

		Year −1	*N*	Year +2	*N*
Leverage increases (150 targets)					
Bank debt/total assets	Median	0.1018	124	0.1964***	136
	Mean	0.1240	124	0.2333***	136
Public debt/total assets	Median	0.1617	52	0.2373***	57
	Mean	0.2034	52	0.2762***	57
Private non-bank debt/ total assets	Median	0.0425	108	0.0497	113
	Mean	0.0800	108	0.0920	113
Leverage decreases (105 targets)					
Bank debt/total assets	Median	0.1556	102	0.0870***	96
	Mean	0.1832	102	0.1228***	96
Public debt/total assets	Median	0.2068	31	0.1634**	29
	Mean	0.2178	31	0.1835**	29

(continued on next page)

Table 4 (*continued*)

Panel C: Debt structure—leverage increases vs. leverage decreases (non-zero proportions in year −1, year +2 only)

		Year −1	*N*	Year +2	*N*
Leverage decreases (105 targets)					
Private non-bank debt/	Median	0.0501	79	0.0311***	71
total assets	Mean	0.0876	79	0.0853	71

***, **, *: statistically significantly different from the year −1 values at 1%, 5% and 10% levels, respectively.

Panel D: Leverage dominance and most significant sources of leverage changes

	Debt structure dominated by		Leverage increase primarily due to
	Year −1	Year +2	
Leverage increases (150 targets)			
Bank debt	70	85	90
Public debt	36	37	28
Private non-bank debt	35	28	32
(No debt present)	9	0	n/a
Total	150	150	150
Leverage decreases (105 targets)			
Bank debt	71	60	66
Public debt	18	20	15
Private non-bank debt	16	19	24
(No debt present)	0	6	n/a
Total	105	105	105

Debt structure changes presented for the sample of 255 targets of cancelled acquisition attempts between 1985 and 1995. Year −1 denotes the closest fiscal year prior to the acquisition announcement. Years +2 (+3, +5) denote the second (third, fifth) earliest available fiscal year after the withdrawal date. Leverage changes are measured as the difference in ratios of total debt to total assets between years −1 and +2. *P*-values are based on *t*-test (mean) and sign-rank test (median). A debt class (bank, public, private non-bank) is said to be a dominant debt structure if a relative majority of company's debt is provided by the debt class. Leverage increase (decrease) is primarily due to a particular debt class if class leverage increased (decreased) relatively the most between years −1 and +2. *P*-values based on *t*-test (mean) and signed-rank test (median).

public debt, the mean and median proportions of public to total debt in year −1 are 0.56 and 0.58, respectively. However, only relatively infrequently do firms use private non-bank investors as the main source of their debt financing. Even when focusing only on firms that borrow from private non-bank investors, the mean and median proportions of debt provided by those investors to total debt are only 0.35 and 0.23, respectively.

Panels A and B also document inter-temporal changes in debt proportions and leverages for each debt class. The results suggest that increases in target total leverage are mainly due to the increases in bank and public leverages. On the other hand, both leverage and the proportion with respect to total debt decrease in the case of private non-bank debt.

Panel C describes changes in leverages for the subsamples of 150 targets that increase and 105 targets that decrease their total leverage. Among leverage-increasing firms, mean and median differences in leverage are positive for all three classes of debt. The magnitudes of those changes are the biggest for bank debt. Leverage differences for private non-bank debt are statistically insignificantly different from zero. Similarly, mean

and median differences in leverage are negative for all three classes of debt for the subsample of 105 companies experiencing declines in leverage. Once again, the changes are the largest for bank debt.

Finally, panel D examines inter-temporal changes in distribution of dominant debt classes. A type of debt is considered to be dominant if it forms a relative majority of the firm's total debt. Panel D also provides the distribution of majority components of total leverage increases (decreases).[13] The results suggest that both among total leverage increases and decreases, leverage changes mainly due to bank (and to lesser extent public) leverage changes. In the case of leverage increases, 90 (i.e., 66%) out of 136 targets that have some bank debt in year +2 increased bank leverage the most between years −1 and +2. Forty-nine percent (28 out of 57) of the targets with public debt outstanding in year +2 used public debt as a main source for their leverage increase. Only 28% (32 out of 113) of the firms with some private non-bank debt increased that leverage class the most. Bank leverage-related decreases were also the most frequent. Total leverage decreases were primarily due to banks in 65% of the cases out of the 102 cases where some bank debt was employed in year −1. Public leverage decreased the most in 48% of firms with some prior public debt, while the private non-bank leverage was the main source of total leverage decreases for only 30% of the targets with some private non-bank debt. As a consequence, the number of firms with bank-dominated debt structure rises following total leverage increases (at the expense of non-bank debt) from 70 to 85. The opposite situation exists for the cases with leverage declines. There may be several reasons why bank leverage tends to change the most following both total leverage increases and decreases. Bank debt has on average shorter maturity compared to both public and private non-bank debt (Barclay and Smith, 1995a; Houston and James, 1996), so it may be expected that bank leverage can be changed faster than either public or private non-bank leverage. Also, bank debt is the primary source of financing for the majority of firms in the sample. Thus, for cases where total leverage changes are due to total assets (rather than debt) adjustments, bank leverage changes (both positive and negative) must also be the most substantial.

3. The impact of leverage changes on targets' corporate policies

Financial literature (both theoretical and empirical, Stulz, 1988; Harris and Raviv, 1988; Berger et al., 1997) expects that the observed changes in targets' leverage around cancelled takeovers should be the consequence of both changes in debt and changes in equity. Managers using the changes in leverage to increase their bargaining power should be expected to actively repurchase company stock. Alternatively, potentially inferior post-takeover performance of targets should be reflected in lower market and book values of equity.

[13] Total leverage increase (decrease) is primarily due to a particular debt class, if that particular class' increased (decreased) the most relatively to other class leverages between years −1 and +2.

Table 5
Changes in common equity, repurchases and restructuring

Panel A: Changes in book value of equity/assets

		Year −1	Year +2	N
(Full sample)	Median	0.4396	0.3877^{ooo}	255
	Mean	0.4544	0.3607^{ooo}	255
(Leverage increases)	Median	0.4688	0.3273^{ooo}	150
	Mean	0.4765	0.3021^{ooo}	150
(Leverage decreases)	Median	0.3932**	0.4328^{ooo,***}	105
	Mean	0.4229**	0.4446***	105
(Debt increase)	Median	0.4743	0.3524^{ooo}	145
	Mean	0.4828	0.3243^{ooo}	145
(Debt decrease)	Median	0.4014**	0.4255**	110
	Mean	0.4171**	0.4088**	110

Panel B: Equity repurchase and restructurings

		Median	Mean	% positive
Common and preferred stock repurchased (−1 to +2)/assets in year −1	Full sample (*N*=235)	0.0093	0.0704	63.4
	Leverage increases (*N*=136)	0.0119	0.0927	64.0
	Leverage decreases (*N*=99)	0.0073	0.0398***	62.6
	Debt increases (*N*=130)	0.0289	0.1048	69.2
	Debt decreases (*N*=105)	0.0025***	0.0279***	56.2

Defensive restructurings from announcement date to withdrawal date +2 years

	Full sample (*N*=255)	Leverage increases (*N*=150)	Leverage decreases (*N*=105)	Debt increases (*N*=145)	Debt Decreases (*N*=110)
Self-tender offer for equity	24 (9.4%)	22 (14.7%)	2 (1.9%)	20 (13.8%)	4 (3.6%)
Private repurchase	71 (27.8%)	41 (27.3%)	30 (28.6%)	44 (30.3%)	27 (24.5%)
Recapitalization	9 (3.5%)	7 (4.6%)	2 (1.9%)	7 (4.8%)	2 (1.8%)
Any of the above	91 (36.4%)	60 (40.0%)	31 (29.5%)	62 (42.8%)	29 (26.3%)

Panel C: Corporate restructuring

		N	Percentage
Asset divestitures, spinoffs, carveouts (from year −1 to year +2)	Full sample (*N*=255)	111	43.5
	Leverage increases (*N*=150)	61	40.7
	Leverage decreases (*N*=105)	50	47.6
	Debt increases (*N*=145)	59	40.7
	Debt decreases (*N*=110)	52	47.3

Changes in number of employees—years −1 to +2

		Year −1	*N*	Year +2	*N*
(Full sample)	Median	1905	253	1780	254
	Mean	8445	253	8139	254

Table 5 (*continued*)

Panel C: Corporate restructuring					
Changes in number of employees—years −1 to +2					
		Year −1	*N*	Year +2	*N*
(Leverage increases)	Median	2078	149	2000	149
	Mean	9082	149	8873	149
(Leverage decreases)	Median	1532	104	1623	105
	Mean	7532	104	7098	105
(Debt increases)	Median	2114	144	2350	145
	Mean	10,654	144	10,731	145
(Debt decreases)	Median	1500**	109	1350***	109
	Mean	5526**	109	4692**	109

***, **, *: differences between samples of leverage (debt) increases and leverage (debt) decreases significant at 1%, 5% and 10% levels, respectively.

^{ooo}, ^{oo}, ^{o}: differences between values on years −1 and +2 significant at 1%, 5% and 10% levels, respectively.

The analysis of changes in common equity, repurchases and restructurings is presented for the sample of 255 targets of cancelled acquisition attempts between 1985 and 1995. Year −1 denotes the closest fiscal year prior to the acquisition announcement. Years +2 (+3) denote the second (third) earliest available fiscal year after the withdrawal date. Amounts of common and preferred stock repurchases and numbers of employees are taken from Compustat. Data on defensive restructurings, divestitures, spinoffs and carveouts are taken from *SDC Mergers and Acquisitions* database. Statistical significance based on t-test (mean), signed-rank test (median of one sample) and Wilcoxon rank-sum test (difference of medians between two samples).

Table 5 shows changes in equity surrounding terminated acquisition attempts, frequency of equity repurchases and incidence of corporate restructuring events. Panel A documents that leverage of takeover targets tends to indeed change due to substantial adjustments in the value of company's equity.[14] Among targets with leverage increases, book value of equity falls from 46.88% to 32.73% of total assets between years −1 and +2. On the other hand, median equity/asset ratio rises from 39.32% to 43.28% for the sample with decreases in leverage. Similar differences exist between subsamples of targets with total debt increases and decreases as well.

The equity changes in panel A may be the result of intentional (e.g., equity issuances and repurchases) as well as unintentional equity adjustments (changes in retained earnings). Therefore, we describe the patterns of equity repurchases (i.e., stock adjustments most likely to be driven by managerial intentions) in panel B. Although the proportions of leverage-(debt-) increasing and leverage-(debt-) decreasing targets repurchasing stock are similar (slightly above 60%), the values of stock repurchases appear to be significantly higher for leverage-(debt-) increasing targets. The results in Panel B further show that leverage-(debt-) increasing firms also more often engage in repurchases that can be considered defensive (public and private share buyback plans initiated after the takeover announcement and/or issuance of extraordinary dividends through recapitalization).

[14] As a result, we will try to distinguish between changes in leverage and debt in our analysis. Debt changes are likely to result in leverage adjustments arising as the consequence of the creditors' willingness to invest (thus such leverage changes are less-likely to be entrenchment-driven).

Denis et al. (1997), Berger and Ofek (1999) and ST show that successfully acquired targets, as well as firms under takeover pressure often undergo value-increasing restructurings such as asset sales, spinoffs and layoffs. Panel C shows the frequency of those corporate restructuring events undertaken by targets of cancelled acquisitions. Not surprisingly, over 40% of the targets in this study are involved in some form of corporate restructuring within 3 years following the takeover announcement. Surprisingly though, the proportion of asset-selling targets is greater among leverage-(debt-)decreasing firms, suggesting that leverage (debt) increase is not necessary to motivate restructuring activities.[15] Although the numbers of employees generally decrease following the acquisition attempt (suggesting layoffs), almost all of the changes are statistically insignificant.

4. Changes in stock ownership structure

Even though leverage increases and substantial changes in debt structure are experienced by the majority of the firms in our sample, a sizable portion (105 out of 255, or 41%) of targets surviving acquisition attempts end up lowering their leverage. In addition, so far our analysis suggests that leverage-decreasing takeovers are met with less negative stock reaction to takeover termination, and that they are equally (if not more) likely to undertake corporate restructuring compared to their leverage-increasing counterparts. As Agrawal and Knoeber (1996) suggest, leverage can be considered as only one of a number of instruments used to align managerial and shareholders' interests. It is thus possible that some alternative control mechanism may change significantly in leverage-decreasing targets, and act as a substitute mechanism for leverage.

The changes in stock ownership structure are documented in Table 6. The results suggest that changes in ownership structure for insiders—officers and directors—are positively related to changes in leverage (although not significantly). Even more importantly, both leverage-increasing and leverage-decreasing targets undergo significant gains in concentration in stock ownership, as measured by the percentage of holdings by block holders and the number of block holders. Most notably, institutional shareholdings show significantly different adjustments for leverage-increasing and leverage-decreasing targets. The institutional holdings of leverage-increasing targets drops, with the mean (median) declining by 3.01% (5.42%). On the other hand, leverage-decreasing targets experience an increase in institutional holdings, with mean and median increases of 3.63% and 4.89%, respectively. Since institutional holdings provide beneficial monitoring

[15] Our results are consistent with Berger and Ofek (1999) and Denis et al. (1997) who claim that a mere threat of takeover is often sufficient to make target managers undertake corporate restructurings. Our findings contrast, however, with ST who report that 45.4% of leverage-increasing targets sold assets within 2 years after the withdrawal date, compared to only 16.5% of leverage-decreasing firms undertaking asset sales within that period. As discussed in Section 1, our sample likely contains a greater fraction (compared to the sample used by ST) of targets where target managers actively tried to stay independent. Our Table 5 results thus support the hypothesis that leverage increases are used by such managers to achieve entrenchment that allows them to avoid restructurings.

Table 6
Changes in stock ownership structure

Panel A: Changes in stock ownership structure—full sample (255 targets)

		Year −1	N	Year +2	N	Difference	N
Officer and director holdings (%)	Median	13.96	247	12.71	253	0.07	245
	Mean	21.00	247	21.34	253	0.32	245
Institutional holdings (%)	Median	32.43	249	29.80	250	0.48	244
	Mean	32.94	249	32.65	250	0.002	244
5% blockholder holdings (%)	Median	30.50	229	42.16	249	6.00^{ooo}	224
	Mean	34.92	229	43.79	249	9.84^{ooo}	224
Number of blockholders	Median	3.00	228	4.00	249	1.00^{ooo}	223
	Mean	2.95	228	3.80	249	0.95^{ooo}	223

Panel B: Changes in stock ownership structure—leverage increases vs. leverage decreases

		Year −1	N	Year +2	N	Difference	N
Leverage increases (150 targets)							
Officer and director holdings (%)	Median	14.00	146	14.19	150	0.22	146
	Mean	19.39	146	21.42	150	2.17	146
Institutional holdings (%)	Median	35.13	147	29.71	148	−1.72	145
	Mean	35.66	147	32.65	148	−2.83	145
5% blockholder holdings (%)	Median	26.70	135	38.76	145	7.82^{ooo}	130
	Mean	32.74	135	43.50	145	11.82^{ooo}	130
Number of blockholders	Median	2.00	134	4.00	145	1.00^{ooo}	129
	Mean	2.75	134	3.80	145	1.13^{ooo}	129
Leverage decreases (105 targets)							
Officer and director holdings (%)	Median	13.78	101	12.18	103	−0.04	99
	Mean	23.34	101	21.22	103	−2.41*	99
Institutional holdings (%)	Median	25.62**	102	30.51	102	3.33^{ooo,***}	99
	Mean	29.02**	102	32.65	102	4.15^{oo,***}	99
5% blockholder holdings (%)	Median	34.24	94	42.37	104	4.98^{ooo}	94
	Mean	38.04	94	44.19	104	7.11^{oo}	94
Number of blockholders	Median	3.00*	94	4.00	104	1.00^{ooo}	94
	Mean	3.23*	94	3.79	104	0.69^{ooo}	94

^{ooo}, ^{oo}, ^{o}: statistically significantly different from zero at 1%, 5% and 10% levels, respectively.
***, **, *: differences between samples of leverage increases and leverage decreases significant at 1%, 5% and 10% levels, respectively.
An analysis of changes in stock ownership structure is presented for the sample of 255 targets of cancelled acquisition attempts between 1985 and 1995. Year −1 denotes the closest fiscal year prior to the acquisition announcement. Years +2 denotes the second earliest available fiscal year after the withdrawal date. Officer and director holdings, blockholdings and numbers of blockholders are collected from CD Disclosure disks and from firm proxy statements. Institutional holdings are collected from CD Disclosure disks and from Standard and Poors Stock Owners Guide. Statistical significance based on *t*-test (mean), signed-rank test (median of one sample) and Wilcoxon rank-sum test (difference of medians between two samples).

(Gillan and Starks, 2000; Morck et al., 1988), the increase in institutional holdings in leverage-decreasing targets suggests that those firms could improve performance due to better alignment of managerial and shareholders' interests.[16]

[16] We repeated the analysis in panel B for the subsamples of debt-increasing and debt-decreasing targets as well. While results are qualitatively similar to those presented in panel B, differences between the two subsamples are not statistically significant.

5. Long-term target stock performance and changes in debt

5.1. Univariate analysis of long-term performance

As panel D of Table 2 shows, stock prices of targets react significantly negatively to the announcement of takeover termination. Generally, the abnormal returns are slightly more negative in cases of leverage-increasing targets, although not significantly so. There have been a number of studies, which suggest that stock prices often underreact to announcements of new information,[17] which is the motivation for studies that examine subsequent long-term performance. Here too, even though the average short-term price reaction suggests that target shareholders doubt that the termination will increase their wealth, there are reasons to study the long-term impact that follows. For example, acquisition terminations are likely to be followed by various managerial actions. As seen in our Tables 4–6, many targets undergo significant restructuring following takeover termination, with the full extent of this restructuring not disclosed at the withdrawal date. Equally importantly, even if targets announce their intentions and increase their leverage prior to the termination, the actual extent of recapitalization *and* the identity of future lender are typically not disclosed prior to the withdrawal date.[18]

In order to analyze the long-term stock performance of targets following takeover cancellation, we utilize the buy-and-hold cumulative stock return over the period of 3 or 5 years (Lyon et al., 1999). The firm's abnormal performance is measured as the difference between the firm's cumulative buy-and-hold returns and returns of a matching portfolio based on size, book-to-market value of equity, and prior performance. Statistical significance of abnormal returns is computed using bootstrapped distribution of abnormal returns (see Appendix A for a description of the methodology).

Table 7 shows results of an univariate analysis between samples with leverage increases and decreases for long-term stock performance (3- and 5-year abnormal returns starting with the first month after the month of the takeover withdrawal). Panel A shows that the sample of leverage-decreasing targets perform no differently from the market over both 3- and 5-year horizons. On the other hand, leverage-increasing targets perform significantly worse than the market. In addition, on average leverage-increasing targets under-perform their leverage-decreasing counterparts by more than 30% over the 3-year period and by approximately 60% over the 5-year period. These results are consistent with our previous finding of a dominant entrenchment role for leverage.

Panel B focuses on the subsample of leverage-increasing firms and performance differences arising due to changes in debt structure. The overall results are consistent with the hypothesis that banks provide superior beneficial monitoring. Targets where leverage

[17] See, for example, Ikenberry et al. (1995), Loughran and Ritter (1995) or Michaely et al. (1995).

[18] For 85 sample firms, we were able to identify articles in ABI ProQuest database that document managerial resistance to the takeover. For 44 of these firms, we find a reference to a plan to increase leverage. None of the articles mentions the identity of prospective lenders to the target firm.

Table 7
Long-term stock performance: univariate analysis

Abnormal stock performance following the withdrawal of takeover attempt				
	3 years		5 years	
	Median	Mean	Median	Mean
Panel A				
Leverage decreases	−0.1008***	0.1888**	−0.1176***	0.3285**
	(0.644)	(0.190)	(0.533)	(0.187)
N	105	105	105	105
Leverage increases	−0.4460	−0.2439	−0.7178	−0.2752
	(0.001)	(0.011)	(0.001)	(0.0923)
N	150	150	150	150
Panel B				
Leverage increases due to banks	−0.3775	−0.2094	−0.5921*	0.0222***
	(0.003)	(0.074)	(0.0170)	(0.930)
N	90	90	90	90
Leverage increases due to non-banks	−0.5100	−0.2956	−0.8018	−0.7210
	(0.001)	(0.073)	(0.001)	(0.001)
N	60	60	60	60
Panel C				
Debt decreases	−0.1913	0.0191	−0.3774	0.0452
	(0.246)	(0.891)	(0.014)	(0.842)
N	110	110	110	110
Debt increases	−0.3393	−0.1300	−0.5896	−0.0810
	(0.001)	(0.190)	(0.001)	(0.651)
N	145	145	145	145
Panel D				
Debt increases due to banks	−0.2653	−0.0747	−0.4631*	0.2265***
	(0.055)	(0.542)	(0.134)	(0.398)
N	90	90	90	90
Debt increases due to non-banks	−0.4183	−0.2205	−0.7456	−0.5841
	(0.002)	(0.195)	(0.001)	(0.001)
N	55	55	55	55

***,**,*: differences between subsamples significant at 1%, 5% and 10% levels, respectively.
We analyze long-term stock performance of 255 targets of unsuccessful acquisition attempts during the period between 1985 and 1995. Long-term stock performance is measured using the methodology of Lyon et al. (1999). Year −1 denotes the closest fiscal year prior the acquisition announcement. Years +2 (+3, +5) denote the second (third, fifth) earliest available fiscal year after the withdrawal date. Leverage (debt) changes are measured as the difference in ratios of total leverage to total assets (the difference in debt outstanding) between years −1 and +2. Leverage increase (decrease) is due to banks if bank leverage increased (decreased) relatively the most (compared to public and private non-bank debts) following the acquisition withdrawal. *P*-values determining statistical significance from zero based on signed-rank test (median) and bootstrapped distribution of mean portfolio returns (mean) are in parentheses. Tests of differences between subsamples based on Wilcoxon rank-sum test (median) and *t*-test (mean).

increased primarily due to bank borrowing perform better compared to firms increasing leverage mainly due to public or private non-bank sources. The difference in 5-year abnormal performance between bank (mean and median abnormal returns of 2.22% and

−59.21%, respectively) and non-bank (mean and median abnormal returns of −72.10% and −80.18%, respectively) samples are statistically significant.[19]

Panels C and D report the differences in long-term performance for 145 targets that increased versus 110 targets that decreased total debt levels (rather than debt ratios). This analysis helps to examine the impact of *new* debt additions (rather than leverage increases that may result from changes in total assets, and as such depend on values of *existing* debt in place). Panel C shows that debt-increasing targets still under-perform firms that lower their debt levels. Nevertheless, the differences between the subsamples are no longer significant. This finding may be expected if entrenchment is an important motive for increases in leverage, since debt providers are unlikely to lend to firms for value-decreasing purposes. Panel D still shows that firms with increases in their debt levels due primarily to bank debt outperform firms with debt increases due to other sources. This result is once again consistent with the beneficial monitoring role of debt, and it is also consistent with findings of James (1987), and Lummer and McConnell (1989), who find positive stock market reactions to announcements of new bank debt issues.

Overall, the results presented in Table 7 support the conclusions drawn by Dann and DeAngelo (1988), and show that leverage increases are driven by entrenchment and that they adversely affect the target's performance.[20] On the other hand, our results are not consistent with those of ST, who argue that leverage increases lead to improvements in the firm's performance. As we have already described, our sample is more likely to include a greater number of targets where control was at stake, and where leverage increases were used to secure long-term independence.

[19] As a robustness check, we examine the relationship between the leverage and long–term accounting operating performance. The performance of every target (EBITDA/Total Assets) was compared to the median performance of the portfolio of companies matched to the target on size, M/B ratio and prior performance. Our analysis shows that leverage–decreasing targets outperform (in terms of EBITDA/Total Assets) leverage–increasing targets over the period of Year –1 to Year +5 by statistically significant 4.1% (median difference). We also find that targets increasing their leverage due to extra bank borrowing outperform targets raising leverage using non–bank lenders by 1.58% (median difference), although the difference is not statistically significant. Nevertheless, the accounting performance comparison suffers from survivorship bias due to subsequent drops of targets in our sample after year +1, and thus the significance of the differences between leverage increases/decreases and leverage increases due to banks/non-banks is lower. The sample size problem does not plague our analysis of stock performance because the long-term returns can be calculated even after the company drops out of our sample (by appending its long-term return by the appropriate portfolio return). Therefore, we think that our focus on stock performance more appropriately documents value gains and losses following takeover terminations. The sample size problem also prevents another robustness check, the study of earnings announcements following cancelled bids (Denis and Sarin, 2001; Jegadeesh, 2000).

[20] Since none of our sample targets is taken over until the second fiscal year-end after takeover termination, the negative long-term performance could be the consequence of a gradual removal of anticipated takeover premium, as the market learns about a lower likelihood of takeover. This potential effect, however, is likely to play a minor role in our sample. First, Table 2 (panel D) documents that the termination announcement completely eliminates, on average, all expected takeover gains (virtually eliminating the possibility of any long-term drift). Second, in an unreported analysis, we added short-term announcement-to-termination return to the set of multivariate determinants of long-term returns (analyzed in the next section). The coefficient for the short–term return was never significant (contrary to the assumption of any link between short- and long-term returns). Besides, the sign of the coefficient was positive (inconsistent with the existence of long-term negative performance drift caused by a gradual disappearance of a positive short-term takeover premium).

Since the periods used to measure long-term performance and leverage changes overlap in our study, the causality of leverage changes and long-term performance can be questioned. For example, it is possible that the substantially negative corporate performance during the first year following the takeover cancellation may lead to an increase in firm's leverage due to a decrease in both market and book values of equity. However, we think that this is unlikely to be the direction of causality. First (in an unreported analysis), we find that the 1-year abnormal performance of leverage-increasing and leverage-decreasing targets is insignificantly different from each other. Second, our results show that increases in leverage and long-term performance are related significantly *differently* depending on the identity of the primary lender to the firm. Third, we re-ran our univariate and multivariate analysis for 3- and 5-year performance using a non-overlapping period starting from the first month after year +2. The leverage-increasing targets still significantly underperform relative to their leverage-decreasing counterparts even for this non-overlapping long-term window.[21]

5.2. Multivariate analysis of long-term target stock performance

Table 8 presents the results of an OLS regression analysis with long-term stock returns performance of target firms as the dependent variable on a dummy variable equal to one for leverage (debt) increases and a set of control variables. These control variables include:

*Interactive term: dummy for leverage (debt) increases*dummy variable for leverage (debt) increases due to bank lenders.* The expected sign for this variable is positive if bank debt plays a beneficial monitoring role following takeover cancellation.

*Interactive term: dummy for leverage (debt) increases*dummy variable for leverage (debt) increases due to public lenders.* The regression coefficient for this variable is expected to be insignificant or negative (public debt is unlikely to play a significant monitoring role and may in fact be strongly associated with entrenchment). A positive coefficient would provide support for the findings of James (1987) who finds that the announcement of private non-bank issues carry the most negative signal about the future performance.

Dummy variable equal to one if company's existing lines of credit (normalized by assets) were extended. Lummer and McConnell (1989) claim that the extension of credit lines carries the most favorable signal about future performance of the company. Thus, the expected sign of the regression coefficient is positive.

Dummy variable equal to one for 50 targets experiencing events 'debt problems', i.e., events likely to lower debt value around the time of takeover attempt (Table 2, panel C). The expected sign of this variable is negative.

[21] We also examined the differential impact of leverage increases for 44 targets that disclosed their intention to increase leverage prior to the takeover termination (see footnote 18). For these targets, arguably, the leverage change should be exogenous and should be unaffected by the firm's subsequent stock performance. The long-term performance of these targets was found to be insignificantly different from the performance of other leverage-increasing targets.

Table 8
Multivariate analysis of long-term abnormal stock performance

	Dependent variable: 5-year long-term abnormal stock performance					
	Impact of leverage changes			Impact of debt level changes		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−0.00476	−0.00519	−0.13612	−0.16940	−0.15417	−0.25125
	(0.968)	(0.966)	(0.360)	(0.173)	(0.232)	(0.101)
Leverage (debt) increase	−0.71050	−0.70590	−0.73797	−0.40173	−0.41507	−0.45668
	(0.0002)***	(0.0004)***	(0.004)***	(0.041)**	(0.041)**	(0.081)*
Leverage (debt) increase*bank leverage (debt) increase	0.41629	0.37618	0.54069	0.43751	0.40670	0.44612
	(0.031)**	(0.062)*	(0.041)**	(0.030)**	(0.048)**	(0.094)*
Leverage (debt) increase*public leverage (debt) increase			0.24536			0.09680
			(0.506)			(0.803)
Credit lines increase			0.13659			0.19458
			(0.491)			(0.330)
Hostile bid dummy	0.28722	0.35229	0.28613	0.21359	0.27642	0.25500
	(0.096)*	(0.043)**	(0.146)	(0.220)	(0.115)	(0.197)
Debt problems	−0.31790	−0.21184	−0.16328	−0.39161	−0.26387	−0.22600
	(0.083)*	(0.263)	(0.445)	(0.036)**	(0.170)	(0.299)
Cash reserves change		−1.17753	−1.28999		−1.08463	−1.29549
		(0.107)	(0.107)		(0.150)	(0.116)
Working capital change		0.65265	0.87573		0.77248	0.92244
		(0.114)	(0.079)*		(0.064)*	(0.065)*
Capital expenditures change		1.39510	0.81868		1.29576	0.69801
		(0.190)	(0.484)		(0.232)	(0.561)
Modified *Z*-score change		0.03051	0.02886		0.03819	0.03391
		(0.466)	(0.515)		(0.368)	(0.450)
Officer and director ownership change			0.00811			0.00797
			(0.147)			(0.157)
Institutional ownership change			0.01048			0.01119
			(0.034)**			(0.023)**
Block ownership change			0.00243			0.00208
			(0.403)			(0.481)
N	255	244	208	255	244	208
Adjusted R^2	0.0586	0.0709	0.0726	0.0270	0.0404	0.0492
F	4.95***	3.32***	2.25***	2.76**	2.28**	1.82**

***, **, *: the coefficient is statistically significantly different from zero at 1%, 5% and 10% levels, respectively. The dependent variable for OLS regression analysis, long-term stock performance is measured as the difference between the holding return of a target and the holding return of a portfolio of companies in the same size decile, the same book/market quintile and the quintile of the same prior performance. *P*-values in parentheses.

Dummy variable equal to one for 62 targets of hostile acquisition attempts. The expected sign of this variable can be either negative (if the hostile character of acquisition sends a negative signal about the quality of management), or positive (target shareholders deciding not to support hostile bidder might have been persuaded by target management about the quality of future prospects).

Change in the following variables: cash reserves/assets, working capital/assets and capital expenditures/assets. These variables are included because (a) similarly to leverage, they experience significant changes around the time of cancelled acquisition, and (b) they are likely to be related to company's performance. Negative coefficient would imply elimination of wasteful spending by target firms. Positive coefficient would indicate that decreases in the above accounting variables represent increasing firm's financial distress and lack of resources for optimal investment.

Change in the value of modified Z-score. Since *Z*-score is an inverse measure of the probability of financial distress, the expected sign of regression coefficient is positive.

Changes in insider (officers and directors), institutional and block shareholding. The coefficients on these variables will be positive if more concentrated ownership and/or institutional monitoring leads to better alignment of managerial and shareholder interests with beneficial implications for performance. However, if more concentrated shareholdings—especially by insiders—increases the cost of takeover attempt (thus making the value-increasing takeovers less likely) and/or if institutions tend to follow managers in their voting (thus giving an excessive power to target insiders), the expected coefficients may be negative.

Results of Table 8 are consistent with those reported for the univariate analysis. Even after controlling for other determinants of long-term stock performance, leverage increases are still negatively associated with long-term abnormal returns. Model 1 suggests that leverage-increasing targets under-perform leverage-decreasing targets by approximately 71% over 5 years, provided that leverage increased due to non-bank sources. The performance of leverage-increasing targets is significantly less negative (by 43%), if leverage increase comes from banks. As a robustness check, we ran additional regression specifications to find out whether an increase in bank leverage has a different impact for companies with access to public debt (companies currently having public debt or large companies). We did not find any significantly different results for such companies.

The only accounting variable significantly related to long-term performance is working capital. The positive coefficient in that case suggests that decreases in working capital adversely affect their long-term performance. In Model 3, the positive coefficient on leverage increase*public debt increase combined with a significantly negative coefficient on leverage increase supports findings of James (1987) that private non-bank debt has significantly more negative impact on the company's performance compared to bank debt. Most importantly, Model 3 shows that increases in institutional ownership are significantly related to long-term performance. A 10% increase in institutional holdings is associated with a 10.5% higher abnormal return over 5 years. Since leverage-decreasing targets experience significant increase in institutional stock ownership, our results are consistent with the ability of such firms to substitute external (debt) and internal (stock holdings) control mechanisms in order to receive the beneficial effects of monitoring by institutions. For the majority of the models, problems related to debt values translate into approximately a 30% drop in

long-term stock performance. Hostile takeovers outperform other firms by approximately 20–30%.

Models 4–6 present the results of a regression analysis using total debt changes instead of leverage changes. The results are similar to those for leverage changes, though the magnitudes of debt related variables are smaller. This finding is also consistent with the results of the univariate analysis of the impact of debt changes. It suggests that target management is somewhat less likely to be able to use newly issued debt for entrenchment purposes. One additional result is notable: unlike the regression analysis with leverage changes, none of the Models 4–6 indicates significant under-performance by targets with debt increasing due to bank borrowing. In fact, the magnitude of the interactive term for debt increases due to bank debt is almost exactly the same as the magnitude of coefficient for leverage increases.

5.3. Bond price effects

The focus of our paper is the analysis of stock returns. Our findings in the previous section suggest that targets of cancelled takeovers that increase their leverage, particularly those that use non-bank borrowing, are associated with worse long-term stock performance. We interpret these results as consistent with an entrenchment hypothesis, as well as with the inferior monitoring abilities of non-bank lenders. However, these findings are also consistent with an alternative explanation that somehow bondholders gain at the expense of equityholders in the aftermath of failed bids.

In Table 9, we examine changes in prices of public bonds from 1 month prior to takeover announcement until 1 month after termination of the takeover bid. Using the *Fixed Income Securities Database*, we found prices, yields and ratings data for 106 bonds issued by 43 sample targets. Overall, based on the full sample of bonds shown in panel A, we find that public bonds experience small, but statistically significant losses (median price drop is 1.27%) from the time of announcement to the termination of the takeover bid, accompanied by ratings downgrades.[22] These results suggest that holders of public bond do not benefit from takeover termination. In addition, the results presented in panel B suggest that the value losses for leverage-increasing targets are no smaller than those for leverage-decreasing targets (in fact, leverage-increasing targets experience more significant debt downgrades). Finally, findings in panel C show that for leverage-increasing targets public bonds experience similar losses irrespective of the source of increase in leverage (bank vs. non-bank).

Unfortunately, changes in the value of non-public loans are virtually unobservable because these loans are not traded. Nevertheless, since private loans are more senior (Barclay and Smith, 1995b), have shorter maturity (Barclay and Smith, 1995a; Houston and James, 1996) and contain stricter protective covenants (Gilson and Warner, 1996; Nash et al., 1997), it can be assumed that changes in the values of private debt are smaller

[22] A unit change in *Moody's* rating corresponds to the change by one numerical modifier (1,2,3) for each of the rating category (Aa to Caa). *Moody's* numeric rating increases corresponds to bond downgrades.

Table 9
Changes in prices, yields and ratings of publicly traded target debt from announcement until takeover termination

Panel A: Full sample

	N	Median	*p*-value	Mean	*p*-value
ΔPrices (%)	106	−1.2650	<0.0001	−2.4182	0.0002
ΔYields (%)	106	0.2740	<0.0001	0.6912	<0.0001
ΔRatings	106	0.0000	0.0041	0.4811	0.0502

Panel B: Leverage increases vs. leverage decreases

	Leverage change	*N*	Median	*p*-value	Mean	*p*-value
ΔPrices (%)	Increase	78	−1.2650	<0.0001	−2.3887	0.0002
	Decrease	28	−1.4350	0.2719	−2.5003	0.1409
ΔYields (%)	Increase	78	0.2505	<0.0001	0.5088	0.0002
	Decrease	28	0.3855	0.1326	1.1994	0.0274
ΔRatings	Increase	78	0.0000	0.0001	0.9615	0.0009
	Decrease	28	0.0000***	0.1250	−0.8571***	0.0432

Panel C: Leverage increases due to bank vs. non-bank debt changes

	Leverage increase	*N*	Median	*p*-value	Mean	*p*-value
ΔPrices (%)	Bank	40	−1.5750	0.0201	−2.2375	0.0296
	Non-bank	38	−1.2650	0.0002	−2.5478	0.0007
ΔYields (%)	Bank	40	0.5500	0.0027	0.5390	0.0139
	Non-bank	38	0.1900	0.0002	0.4771	0.0056
ΔRatings	Bank	40	0.0000	0.0107	1.1000	0.0247
	Non-bank	38	0.0000	0.0156	0.8157	0.0077

***, **, * denotes the statistical significance of the difference between subsamples of bonds issued by leverage-increasing and leverage decreasing targets on 1%, 5% and 10% levels.
This table presents the analysis of changes in prices and yields of 106 public bonds issued by 43 sample targets that have pricing data available in *Fixed Income Securities Database*. The changes are measured from 1 month prior the acquisition announcement to 1 month after the termination of the acquisition. A unit change in *Moody's* rating corresponds to the change by one numerical modifier (1,2,3) for each of the rating category (Aa to Caa). *Moody's* numeric rating increases corresponds to bond downgrades. Statistical significance of the difference with respect to zero is determined using *t*-test (mean) and Wilcoxon signed rank test (median).

in magnitude and/or less likely compared to those of public debt. Thus, the results in Table 9 suggest that the negative long-run stock performance of leverage-increasing targets is more likely due to the post-termination activities of target management, and is not a consequence of wealth transfers to target debt.

6. Conclusion

Our study focuses on changes in debt levels, debt structure and the performance of targets of "truly" withdrawn takeovers. Takeover attempts in our study are motivated by change in corporate control and do not ultimately result in a successful acquisition by an alternative bidder. To further incorporate the potential corporate governance effects of debt, we also take into account changes in the structure of debt (bank, public and private non-bank debt). Our sample is designed

to study the long-term "strategic" impact of leverage changes, and consequently the impact of long-term monitoring by debt on target performance.

We find that target leverage (total debt to assets) significantly increases following cancelled acquisition attempts. As a result, targets become significantly over-levered. However, we do not find any evidence that the leverage increase is beneficial for the target companies (unless we consider the role of debt structure). To the contrary, leverage-decreasing targets seems to be associated with no greater negative stock reaction to cancellation announcements, and they appear to pursue typical value-enhancing policies (divestitures, spinoffs, carveouts) more frequently. They are also associated with significant increases in cash flows following the takeover withdrawal, and, unlike leverage-increasing targets, they are not associated with significant increases in the likelihood of financial distress. Interestingly, leverage-decreasing firms experience an increase in institutional ownership, and that this appears to have a positive impact on performance, suggesting that changes in stock ownership provide substitute monitoring. Overall, we find that leverage-decreasing targets outperform their leverage-increasing counterparts by approximately 60% over the 5 years after the cancellation date.

Our results can also be compared to other papers that study long-term performance of firms that issue new debt. Spiess and Affleck-Graves (1999) document substantial long-run post-issue under-performance by stocks of firms making straight or convertible debt offerings. However, this under-performance is concentrated among smaller, younger and NASDAQ-listed firms. They find no under-performance for the largest straight debt issuers, which contrasts with the substantial under-performance we find for our roughly comparable sample of firms issuing non-bank debt. More recently, Billett et al. (2003) find that firms announcing bank loan financing suffer negative abnormal stock returns during the 3-year post announcement period. This again contrasts with our findings that firms issuing new bank debt do not show under-performance. These comparisons suggest that debt takes on a different role in the context of takeovers.

Even though our long-term performance results are consistent with a predominant negative (entrenchment) role of leverage, we find that the negative relation between leverage and long-term performance is significantly diminished (or even disappears) when the increase in leverage comes primarily from bank borrowings. This result suggests that companies find bank monitoring beneficial. However, when the increase in leverage comes from non-bank sources, then, perhaps on account of weaker monitoring, performance is adversely affected.

Altogether, our findings suggest four broad conclusions: First, to understand the role of debt in the aftermath of cancelled takeover attempts, it is important to also consider the composition and source of debt. Second, although we find that the dominant managerial motivation for increases in leverage following failed takeover attempts appears to be further entrenchment, it can be accompanied by the beneficial aspects of increased debt depending on the source of debt. Third, our findings affirm the proactive beneficial monitoring role assigned in the literature to bank debt. Four, our findings are consistent with an important role for stock ownership structure, with institutional ownership seeming to play a substitute corporate governance role for debt in leverage-decreasing target firms.

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Appendix A

Methodology for measurement of long-term abnormal returns (Lyon et al., 1999)

(1) Fourteen different size reference portfolios are constructed as follows. In the month of takeover withdrawal, all NYSE firms are placed in market value of equity-based deciles. In addition, the smallest size decile is further divided into quintiles (to account for the fact that Amex and Nasdaq firms are on average significantly smaller and thus the smaller decile gets overpopulated once these firms are added into deciles based on NYSE values). Amex and Nasdaq firms are then added into portfolios based on NYSE sizes.
(2) Five different book-to-market value of equity reference portfolios are constructed as follows: In the month of takeover withdrawal, all firms are placed in book-to-market of equity-based quintiles.
(3) Three prior performance reference portfolios are constructed as follows: In the month of takeover withdrawal, all firms are placed in the prior performance-based terciles (prior performance is measured as 12-month buy-and-hold return).
(4) Each of the target companies is matched to all firms belonging to the same size, book-to-market, and prior performance portfolios as the target firm. The abnormal return for each sample firm is then computed as the difference between buy-and-hold return of the company and buy-and-hold return of the equally-weighted matched portfolio. If either sample, or any of the firms in the matching portfolio delists, proceeds from the investment are re-invested into equally-weighted market CRSP return until the maturity of the investment.
(5) The abnormal sample firm portfolio return then computed as the difference between average of sample firm returns and average of returns on matched portfolios. The statistical significance of the abnormal sample firm portfolio return is based upon bootstrapped empirical distribution of long-term abnormal stock returns. One thousand of randomly chosen portfolios are drawn as follows: For each sample firm with the month of withdrawal t, the replacement firm in the same size, book-to-market and prior performance reference portfolios in the month t is chosen. After forming an entire portfolio using this algorithm, abnormal performance of this portfolio is computed using the same methodology as the one described in steps 1–4. The entire process is repeated 1,000 times in order to get the empirical distribution of long-term abnormal returns.

(6) The p-value of the statistical significance of mean sample portfolio abnormal return is based on the proportion (out of 1000) of randomly generated portfolios yielding
   – greater abnormal return than that of the sample, provided sample abnormal return is greater than the average abnormal return, or
   – smaller abnormal return than that of the sample portfolio, provided sample abnormal return is smaller than the average abnormal return.

For two-tailed tests, this proportion is multiplied by two.

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