Extreme Actions of Incumbent CEOs To Frustrate Hostile Takeover Bids

Nicholas F. Carline[a], Scott C. Linn[b], and Pradeep K. Yadav[b, c]

Abstract

We examine the motivational implications for operational and financial transactions in hostile takeover bids that make targets less valuable and more difficult to acquire. Relative to other types of bid resistance, our findings suggest that this action is motivated less by target undervaluation and the potential for price improvements from initial offers, and more by the potential for incumbent CEO entrenchment. Investors, successful acquirers, and surviving incumbent boards would seem to come to the conclusion that incumbent CEOs are more likely to have triggered the action as a ploy for their own ends than for the advantage of target stockholders.

JEL classification: G34

Keywords: hostile takeover; bid resistance; stockholder wealth; managerial turnover

July 31, 2017

---

[a] Department of Finance, Birmingham Business School, University of Birmingham, Birmingham B15 2TY, UK.
[b] Division of Finance, Michael F. Price College of Business, University of Oklahoma, Norman OK73019, US.
[c] Corresponding author. Telephone: (+1) 405-325-5591. Email: pyadav@ou.edu.
For detailed feedback, we thank the following individuals: Eric de Bodt; Mark Chen; Andrey Golubov; Dirk Jenter; Omesh Kini; Hamed Mahmudi; David Mauer; William Megginson; Thomas Moeller; Michael Rebello; Gregory Waller. We also thank participants at Annual Meetings of the American Finance Association and Financial Management Association, as well as attendees at seminars and workshops held at the following places: City, University of London (Cass); Georgia State University (Robinson); Lancaster University (LUMS); University of Auckland; University of Lille (SKEMA); University of Oklahoma (Price); University of Texas at Dallas (Jindal). Lastly, we are grateful to the Economic and Social Research Council for financial support.

Extreme Actions of Incumbent CEOs To Frustrate Hostile Takeover Bids

1. Introduction

With hostile takeover bids on the rise once more there is much at stake for target stockholders and CEOs alike.[1] For target stockholders there is the expectation of positive wealth effects, while for incumbent CEOs there is the expectation of managerial turnover. Hostility in takeover bids can be a double-edged sword for target stockholders. Although hostility may be motivated by target undervaluation and the potential for price improvements from initial offers, it may also be motivated by the potential for incumbent CEO entrenchment. The task that investors then face is to decide whether incumbent CEOs are more likely to have triggered hostility, by rejecting initial offers, as a ploy for their own ends than for the advantage of target stockholders. In this study, we examine whether this task is a different proposition for target stockholders when incumbent CEOs also trigger more extreme actions to frustrate hostile takeover bids.

We define more extreme actions to frustrate hostile takeover bids (hereafter, frustrating action) as being the triggering by incumbent CEOs of any operational and financial transaction that make targets less valuable and more difficult to acquire, at least for initial would-be acquirers. Frustrating action includes defensive divestments, acquisitions, and payouts. When triggered (announced), many forms of frustrating action are value reducing for target stockholders (see Ruback, 1987). Berkovitch and Khanna (1990), however, caution against reliance on announcement effects to pass judgement on frustrating action. In contrast to the theoretical analysis of Baron (1983), but in theoretical consensus with Hirshleifer and Titman (1990), Berkovitch and Khanna (1990) predict that even frustrating action can be for the advantage of target stockholders. Although frustrating action can be value reducing for initial would-be acquirers, it does not necessarily also make targets less

[1] See Hostile takeovers rise to 14-year high in M&A as confidence grows, Financial Times, June 8, 2014.

valuable and more difficult to acquire for other would-be acquirers. Moreover, the threat to trigger frustrating action can be sufficient to generate higher offer premiums from initial would-be acquirers. Frustrating action may therefore be motivated by target undervaluation and by the potential for price improvements from initial offers. However, Berkovitch and Khanna (1990) also predict that more incumbent managerial control can make target stockholders less easily persuaded that frustrating action is in their best interests, and not motivated more by the potential for incumbent managerial entrenchment.

Our empirical objectives are twofold. First, we examine the relative importance of initial offer and target characteristics for predicting frustrating action in hostile takeover bids to shed light on the motivational implications for this type of resistance. Second, we examine whether the motivational implications for frustrating action are reflected in the target stockholder wealth effects of hostile takeover bids and in the rate of incumbent CEO turnover after hostile takeover bids.

The main concern for a study of frustrating action in hostile takeover bids is the pre-existence of legal provisions or mechanisms in corporate charters and States of incorporation that have been shown to give firms protection from takeover bids (see Cuñat, Giné, and Guadalupe, 2017; Cain, McKeon, and Solomon, 2017; Karpoff, Schonlau, and Wehrly, 2017). Cain, McKeon, and Solomon (2017) also present empirical results showing that targets with more takeover protection from these structural defenses generate higher offer premiums.[2] Although we can account for the effect of censoring non-targets, for targets, because of the pre-existence of structural defenses, it is possible that not all bid resistance will be observed. There therefore remains the concern of incompletely differentiating between frustrating action and other types of resistance in hostile takeover bids. In contrast to the situation in the

[2] Cuñat, Giné, and Guadalupe (2017), however, also show empirically that targets with less takeover protection from structural defenses generate higher offer premiums.

US, company laws have consistently rendered structural defenses absent in the UK. For these reasons, we examine frustrating action in UK hostile takeover bids.

Our findings shed new light on the motivational implications for hostility in takeover bids. Franks and Mayer (1996), Schwert (2000), and Bates and Becher (2017) present empirical analysis suggesting that incumbent managers are more likely to have triggered hostility for the advantage of target stockholders than as a ploy for their own ends. However, we find that the relationships between initial offer and target characteristics and the probability of general hostility in takeover bids have clearer motivational implications when it comes to also differentiating between frustrating action and other types of resistance in hostile takeover bids. In particular, although our findings provide support for the suggestion that general hostility is motivated by the potential for price improvements from initial offers (see Jennings and Mazzeo, 1993; Bates and Becher, 2017), this motive would seem to have less to do with frustrating action than other types of bid resistance. Also, although we find support for the suggestion that general hostility is also motivated by incumbent CEO inefficiency and, hence, the potential for entrenchment (see Mørck, Shleifer, and Vishny, 1988), this motive would seem to have more to do with frustrating action than other types of bid resistance.

The takeover literature also emphasizes the importance of incumbent managerial control to an understanding of various outcomes in takeover bids (see Shleifer and Vishny, 1986; Stulz, 1988; Mikkelson and Partch, 1989; Shivdasani, 1993; Cotter and Zenner, 1994; Hirshleifer and Thakor, 1994; Cotter, Shivdasani, and Zenner, 1997; Moeller, 2005; Jenter and Lewellen, 2015). In a new context, we find that proxies for more incumbent CEO control gain importance for predicting frustrating action in hostile takeover bids. In particular, hostile takeover bids with frustrating action are associated more with middle-aged incumbent CEOs and with larger incumbent CEO stockholdings, but smaller other incumbent directors stockholdings, than other hostile takeover bids. Hostile takeover bids with frustrating action are also associated less with independent incumbent chairpersons and with smaller target outside blockholdings than other hostile takeover bids. All in all, our findings for incumbent CEO control suggest that frustrating action is motivated more by the potential for entrenchment than other types of bid resistance.

Differentiating between frustrating action and other types of resistance also gives new insights into the takeover literature on the target stockholder wealth effects of hostility in takeover bids (see Huang and Walkling, 1987; Schwert, 2000), on incumbent managerial turnover after hostility in takeover bids (see Martin and McConnell, 1991; Agrawal and Walkling, 1994; Harford, 2003; Kini, Kracaw, and Mian, 2004), and on incumbent managerial turnover after failed takeover bids (see Denis and Serrano, 1996; Bates and Becher, 2017). We go on to find that the motivational implications for frustrating action are reflected in smaller target stockholder wealth effects of hostile takeover bids, and in a higher rate of incumbent CEO turnover after hostile takeover bids, than for other types of resistance. The first of these findings is indicative of investor realization that incumbent CEOs are more likely to have triggered frustrating action as a ploy for their own ends than for the advantage of target stockholders, while the second finding suggests that hostile takeover bids with frustrating action are more likely to be disciplinary than other hostile takeover bids. Although incumbent CEOs that trigger frustrating action are more likely to survive after failed hostile takeover bids, we also find that failed hostile takeover bids with frustrating action are associated more with incumbent CEO turnover than other failed hostile takeover bids. This finding is indicative of surviving incumbent boards and investors acting on the realization that incumbent CEOs are more likely to have triggered frustrating action as a ploy for their own ends than for the advantage of target stockholders.

Our findings are also new to the takeover literature on frustrating action in hostile takeover bids (see Dann and DeAngelo, 1988; Klein and Rosenfeld, 1988; Denis, 1990; Heron and Lie, 2006; Ryngaert and Scholten, 2010). In contrast to these studies, we examine frustrating action non-selectively and relative to a control group for other types of bid resistance. Lastly, our findings complement the analysis of Dimopoulos and Sacchetto (2014) showing that a theoretical measure for the extent of bid resistance is greater for targets with more managerial control. We do not find similar support, however, for the extent of bid resistance being greater for takeover bids with multiple would-be acquirers.

We account for the effects of censoring other takeover bids and treating the type of bid resistance as being exogenous. For these tests, we differentiate between target fiscal year-ends before and after incorporation of the corporate governance recommendations of the Cadbury Report into the listing requirements of the main London market in 1993. The post-Cadbury environment makes it mandatory for incumbent boards to state the extent of their compliance with recommendations intended to lessen CEO control and is associated with a wholesale lessening of incumbent CEO control (see Dahya and McConnell, 2007; Dahya, Golubov, Petmezas, and Travlos, 2016). We find that a post-Cadbury variable is an important predictor of general hostility in takeover bids and of frustrating action in hostile takeover bids. However, we have no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also directly relevant when it comes to differences in the target stockholder wealth effects of hostile takeover bids and in the probability of incumbent CEO turnover after hostile takeover bids. Besides serving as a reliably strong exclusive variable, the theoretical analysis of Berkovitch and Khanna (1990) suggests that an exogenous event potentially affecting the ability of incumbent managers to trigger frustrating action can make for a more powerful study. For these reasons, we examine frustrating action in hostile takeover bids before and after the Cadbury Report in the years 1989-2003.

The study is organized as follows. Section 2 describes the sample of hostile takeover bids. Section 3 examines the relative importance of initial offer and target characteristics for predicting frustrating action in hostile takeover bids to shed light on the motivational implications for this type of resistance. Sections 4 and 5 examine whether the motivational implications for frustrating action are reflected in the target stockholder wealth effects of hostile takeover bids and in the rate of incumbent CEO turnover after hostile takeover bids, respectively. Finally, Section 6 concludes.

2. Sample of hostile takeover bids

In this section, we describe the sample of hostile takeover bids. We present and discuss descriptive statistics for sample time series in Section 2.1, and do the same in Sections 2.2 and 2.3 for bid and target characteristics and frustrating action in hostile takeover bids, respectively.

2.1 Sample

To construct the sample of hostile takeover bids, we start with takeover offers in the Securities Data Corporation database for UK public firms that are announced between July 1, 1989 and December 31, 2003. We use the Corporate Register, first published in March 1989 and thereafter in six month intervals, to exclude takeover offers for targets that are not listed on the main London market and that belong to one of the following more regulated industries: financials; utilities; telecommunications; broadcasting; newspapers; public transport.

Initial offers are announced at least one year after prior takeover bids and are for at least fifty percent of the target stock. Takeover bids begin from rumors and extend to improved offers from initial and other would-be acquirers announced within one year of prior takeover offers. We carry out these screening and merging procedures for takeover offers using the Regulatory News Service (RNS). Merging takeover offers in this way ensures that we consistently measure the actual target stockholder wealth effects of failed hostile takeover bids, and that we consistently capture incumbent CEO turnover after failed hostile takeover bids, in the absence of takeover offers for at least one year. Hostile takeover bids have RNS announcements in which incumbent CEOs reject initial offers. We censor other takeover bids, but account for the effect of doing so in the modelling parts of the empirical analysis.

In Panel A of Table 1, we present sample time series, by bid (initial offer) announcement years, for the frequencies of all takeover bids and hostile takeover bids. Of the 792 takeover bids in total, 130 (16.41 percent) are hostile takeover bids. There is a noticeable sustained drop, however, in the proportions for hostile takeover bids after incorporation of the Cadbury recommendations into the listing requirements of the main London market in 1993. Given that the post-Cadbury environment is associated with a wholesale lessening of incumbent CEO control, this observation suggests that general hostility is motivated to at least some extent by incumbent CEO control.

Also, in Panel B of Table 1, we present sample time series, by bid announcement years, for the aggregate sizes of targets (in real, 2003, GBP million) for all takeover bids and hostile takeover bids.[3] Of the GBP 392,711.67 million aggregate size of targets in total, GBP 124,324.80 million (31.66 percent) is for hostile takeover bids. Hostile takeover bids are therefore associated with larger targets than other takeover bids. Also, there is no sustained drop in the proportions for the aggregate sizes of targets for hostile takeover bids in the post-Cadbury environment, which suggests that larger targets are unlikely to be a strong proxy for more incumbent CEO control.

2.2 Bid and target characteristics

In Table 2, we present descriptive statistics for the bid and target characteristics of hostile takeover bids. We define bid and target characteristics in Table A1 of the Appendix.

[3] We define target size in Table A1 of the Appendix.

For the dependent variables, we measure the expected target stockholder wealth effects of hostile takeover bids from before rumors through to initial offer announcements, whereas the measurement periods for the actual target stockholder wealth effects span the entire durations of hostile takeover bids, and one year after for failed hostile takeover bids. The expected and actual target stockholder wealth effects average 23.48 and 24.47 percent, respectively. For the actual target stockholder wealth effects, however, the standard deviation is almost twice as large as for the expected target stockholder wealth effects. Also for the dependent variables, incumbent CEO turnover is instigated after hostile takeover bids by successful acquirers and by surviving incumbent boards and investors within one year of, and, thus, within relatively close proximity to, failed hostile takeover bids. The rate of incumbent CEO turnover is 44.63 percent.

As for the independent variables for bid characteristics, the takeover literature suggests accounting for multiple would-be acquirers (see Jennings and Mazzeo, 1993), failed takeover bids (see Denis and Serrano, 1996), initial offer premiums (see Jennings and Mazzeo, 1993; Bates and Becher, 2017), and initial cash-only offers (see Malmendier, Opp, and Saidi, 2016). Multiple would-be acquirers occur in 19.23 percent of hostile takeover bids and failed takeover bids account for 31.54 percent of hostile takeover bids. Also, initial offer premiums average 33.49 percent for hostile takeover bids and initial cash-only offers occur in 67.69 percent of hostile takeover bids. Interestingly, although we also measure initial offer premiums from before bid rumors, the mean and standard deviation for the expected target stockholder wealth effects are noticeably lower than for initial offer premiums, and, as it turns out, by percentage differences that are roughly equal to the rate of failed hostile takeover bids.

The takeover literature also suggests independent variables that proxy for target information asymmetry (see Jennings and Mazzeo, 1993). For our proxies for target information asymmetry, newly-listed targets occur in 16.28 percent of hostile takeover bids and target stock volatility and target financial slack average 2.20 and 10.54 percent, respectively, for hostile takeover bids. Also, target size and target leverage average GBP 986.70 million (in real, 2003, terms) and 55.44 percent, respectively, for hostile takeover bids. We convert target size into natural logarithmic form in the modelling parts of the empirical analysis.

Lastly, we include variables that proxy for incumbent CEO inefficiency and control. For our proxies for incumbent CEO inefficiency, target asset-turnover ratios average 138.61 percent for hostile takeover bids. Also, target stock performance and target market-to-book ratios average 131.85 and -32.47 percent, respectively, for hostile takeover bids.

For our proxies for incumbent CEO control, incumbent CEO age averages 51.57 years for hostile takeover bids. Also, incumbent CEO stockholdings and other incumbent directors stockholdings average 2.72 percent and 2.21 (aggregate) percent, respectively, for hostile takeover bids. We alternate between linear, curvilinear, and natural logarithmic forms for incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in the modelling parts of the empirical analysis. Also, independent incumbent chairpersons occur in 34.71 percent of hostile takeover bids, incumbent board size averages 7.13 directors for hostile takeover bids, initial would-be acquirers with interlocking/siding incumbent directors occur in 12.31 percent of hostile takeover bids, and target outside blockholdings average 29.26 (aggregate) percent for hostile takeover bids. Although the post-Cadbury environment is associated with a wholesale lessening of incumbent CEO control, none of our proxies for incumbent CEO control equate to specific Cadbury recommendations. In particular, one of the recommendations is for incumbent CEOs and chairpersons to be separate directors, but not specifically for incumbent chairpersons to be independent directors.

Also, the recommendations do not specifically require that independent directors be seated on at least one other board.

We measure and capture the variables for target characteristics before rumors to ensure that the proxies for information asymmetry and CEO inefficiency and control are consistently in the absence of hostile takeover bids. Also, the modelling parts of the empirical analysis are, for all intents and purposes, unaffected if we windsorize the dependent and independent variables.

2.3 Frustrating action

In Table 3, we present frequencies for the triggering of frustrating action by incumbent CEOs in hostile takeover bids. We use the RNS to differentiate between frustrating action and other types of bid resistance. Unlike frustrating action, other types of bid resistance do not amount to any operational and financial transactions that make targets less valuable and more difficult to acquire. These more gentle types of bid resistance amount in the main to stakeholder communication and delaying tactics. Litigation, however, as an example of a delaying tactic (see Jarrell, 1985), rarely occurs in UK hostile takeover bids. Also, other would-be acquirers, friendly (white knight) or otherwise, cut across hostile takeover bids with frustrating action and other hostile takeover bids. Of the 130 hostile takeover bids in total, 53 (40.77 percent) are hostile takeover bids with any form of frustrating action. We account for the effect of treating the type of bid resistance as being exogenous in the modelling parts of the empirical analysis.

Incumbent CEOs, however, trigger several, and sometimes multiple, forms of frustrating action in hostile takeover bids. By far, the most common form of frustrating action is the demerging and selling of target, crown-jewel, assets (defensive divestment), which occurs in 20.00 percent of hostile takeover bids. Making counter, pac-man, takeover offers, buying other firms or assets, and creating joint ventures (defensive acquisition) is the next most common form of frustrating action, occurring in 13.08 percent of hostile takeover bids. A far less common form of frustrating action is the repurchasing of the target stock and the paying of special dividends (defensive payout), which occurs in 6.15 percent of hostile takeover bids. Introducing special compensation payments in the event of incumbent CEO turnover after hostile takeover bids (golden parachute) and taking targets private (defensive management buyout) are jointly the next least common forms of frustrating action, occurring in 3.85 percent of hostile takeover bids. Lastly, the least common form of frustrating action is the facilitating of alliances by acquisitions of target toeholds below the thirty percent threshold for mandatory takeover offers (white squire), which occurs in 3.08 percent of hostile takeover bids.

3. Predicting frustrating action in hostile takeover bids

In this section, we examine the relative importance of initial offer and target characteristics for predicting frustrating action in hostile takeover bids to shed light on the motivational implications for this type of resistance. We present and discuss results from basic likelihood models in Section 3.1, and do the same in Section 3.2 for a likelihood model that accounts for the effect of censoring other takeover bids. The dependent variable for all models equals one for hostile takeover bids with frustrating action and zero for other hostile takeover bids. To proxy for a wholesale lessening of incumbent CEO control, all models also include a post-Cadbury variable that equals one for target fiscal year-ends after June 30, 1993 in the RNS before bid rumors and zero for other target fiscal year-ends. Also, all models include controls for four target industries and are, for all intents and purposes, unaffected by the inclusion or otherwise of controls for bid announcement years.[4]

3.1 Basic likelihood models

[4] We use the Corporate Register to combine target, ICB, industries into four groups as follows: (i) oil & gas and basic materials; (ii) industrials, including technology hardware & equipment; (iii) consumer goods and healthcare; (iv) consumer services, including software & computers services.

In Columns (1) to (4) of Table 4, we present average marginal effects from probit regressions for the probability of frustrating action in hostile takeover bids. We model the probability of frustrating action as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. The results in Column (4), upon which we base the discussion, blend the strongest of these functions.

For initial offer characteristics, the results show that hostile takeover bids with frustrating action are associated with higher initial offer premiums than other hostile takeover bids. A one standard deviation (37.28 percentage-points) increase in the initial offer premium is associated with a 16.58 percentage-points increase in the probability of frustrating action. This average marginal effect is significant at the one percent level and suggests that frustrating action is motivated less by the potential for price improvements from initial offers than other types of bid resistance, no matter whether initial would-be acquirers offer higher premiums in an attempt to kill-off threats from incumbent CEOs to trigger frustrating action, as the theoretical analysis of Berkovitch and Khanna (1990) predicts. Malmendier, Opp, and Saidi (2016) present empirical results suggesting that cash offers signal undervaluation of the target stock. Our results reveal that hostile takeover bids with frustrating action are also associated less with initial cash-only offers than other hostile takeover bids. An initial cash-only offer is associated with a 16.46 percentage-points decrease in the probability of frustrating action relative to other initial offers. This average marginal effect is significant at the five percent level and suggests that frustrating action is motivated less by target undervaluation and, hence, the potential for price improvements from initial offers than other types of bid resistance.

A similar inference can be drawn from the results for target characteristics that proxy for information asymmetry and, hence, the potential for undervaluation. These results show that hostile takeover bids with frustrating action are associated less with newly-listed targets, and, thus, less with target information asymmetry, than other hostile takeover bids. A newly-listed target is associated with a 44.84 percentage-points decrease in the probability of frustrating action relative to other targets. This average marginal effect is significant at the one percent level. The results also reveal that hostile takeover bids with frustrating action are associated with lower target stock volatility, and, thus, with less target information asymmetry, than other hostile takeover bids. A one standard deviation (1.37 percentage-points) increase in the target's stock volatility is associated with a 10.57 percentage-points decrease in the probability of frustrating action. This average marginal effect is significant at the ten percent level. The results also show that hostile takeover bids with frustrating action are associated with lower target financial slack, and, thus, with less target information asymmetry, than other hostile takeover bids. A one standard deviation (15.27 percentage-points) increase in the target's financial slack is associated with a 10.42 percentage-points decrease in the probability of frustrating action. This average marginal effect is significant at the five percent level. Hostile takeover bids with frustrating action are not, however, associated with significantly different target size and target leverage from other hostile takeover bids.[5] The first three of these results suggest that frustrating action is motivated less by target information asymmetry and, hence, the potential for undervaluation than other types of bid resistance.

Target characteristics that proxy for CEO inefficiency and control also gain importance for predicting frustrating action in hostile takeover bids. For incumbent CEO inefficiency, the results show that hostile takeover bids with frustrating action are associated with lower target asset-turnover ratios, and, thus, with more incumbent CEO inefficiency,

[5] Although target size and incumbent board size are highly correlated, the average marginal effects for target size remain insignificant if we drop incumbent board size from all models. Also, the estimates for initial offer and target characteristics are, for all intents and purposes, unaffected if we drop target size from all models.

than other hostile takeover bids. A one standard deviation (89.20 percentage-points) increase in the target's asset-turnover ratio is associated with a 19.93 percentage-points decrease in the probability of frustrating action. This average marginal effect is significant at the one percent level. Hostile takeover bids with frustrating action are not, however, associated with significantly different target stock performance and target market-to-book ratios from other hostile takeover bids. The first of these results suggests that frustrating action is motivated more by incumbent CEO inefficiency and, hence, the potential for entrenchment than other types of bid resistance.

For incumbent CEO control, the results show that hostile takeover bids with frustrating action are associated more with middle-aged incumbent CEOs, and, thus, more with control preference incumbent CEOs, than other hostile takeover bids. The probability of frustrating action is strictly a curvilinear function of incumbent CEO age, as is fully revealed by the supplementary results that we present in Columns (1) and (2) of Table 5 and discuss now. In Column (1), the probability of frustrating action for a 66 year-old, maximum-aged, incumbent CEO (24.49 percent), while higher than for a 38 year-old, minimum-aged, incumbent CEO (11.29 percent), is less than half the probability of frustrating action for a 52 year-old, mean-aged, incumbent CEO (50.83 percent). Also, in Column (2), the incremental probabilities of frustrating action increase significantly for incumbent CEO ages 38-52, change insignificantly for incumbent CEO ages 52-60, and decrease significantly for incumbent CEO ages 60-66.

The results for CEO control also show that the probability of frustrating action is strictly a monotonic function of incumbent CEO stockholding and that hostile takeover bids with frustrating action are associated with larger incumbent CEO stockholdings, and, thus, with more incumbent CEO control, than other hostile takeover bids. A one standard deviation (7.26 percentage-points) increase in the incumbent CEO's stockholding is associated with a

28.10 percentage-points increase in the probability of frustrating action. This average marginal effect is significant at the one percent level. In contrast, although the probability of frustrating action is also strictly a monotonic function of other incumbent directors stockholding, hostile takeover bids with frustrating action are also associated with smaller other incumbent directors stockholdings, and, thus, with more incumbent CEO control, than other hostile takeover bids. A one standard deviation (6.51 percentage-points) increase in the other incumbent directors' stockholding is associated with a 46.87 percentage-points decrease in the probability of frustrating action. This average marginal effect is significant at the one percent level.

Also for incumbent CEO control, the results show that hostile takeover bids with frustrating action are also associated less with independent incumbent chairpersons, and, thus, more with incumbent CEO control, than other hostile takeover bids. An independent incumbent chairperson is associated with a 16.65 percentage-points decrease in the probability of frustrating action relative to other incumbent chairpersons. This average marginal effect is significant at the five percent level. The results also reveal that hostile takeover bids with frustrating action are associated with smaller incumbent boards, and, thus, with more incumbent CEO control, than other hostile takeover bids. A one standard deviation (2.35 directors) increase in the incumbent board's size is associated with an 11.89 percentage-points decrease in the probability of frustrating action. This average marginal effect is significant at the five percent level. The results also show that hostile takeover bids with frustrating action are associated less with initial would-be acquirers with interlocking/siding incumbent directors, and, thus, more with incumbent CEO control, than other hostile takeover bids. An initial would-be acquirer with an interlocking/siding incumbent director is associated with a 32.07 percentage-points decrease in the probability of frustrating action relative to other initial would-be acquirers. This average marginal effect is significant at the one percent level. The results also reveal that hostile takeover bids with frustrating action are associated with smaller target outside blockholdings, and, thus, with more incumbent CEO control, than other hostile takeover bids. A one standard deviation (20.00 percentage-points) increase in the target's outside blockholdings is associated with a 22.20 percentage-points decrease in the probability of frustrating action. This average marginal effect is significant at the one percent level. All in all, the results for incumbent CEO control suggest that frustrating action is motivated more by the potential for entrenchment than other types of bid resistance.

Lastly, the post-Cadbury variable, which proxies for a wholesale lessening of incumbent CEO control, also gains importance for predicting frustrating action in hostile takeover bids. Interestingly, hostile takeover bids with frustrating action are associated more with post-Cadbury target fiscal year-ends, and, thus, more with a wholesale lessening of incumbent CEO control, than other hostile takeover bids. A post-Cadbury target fiscal year-end is associated with a 55.68 percentage-points increase in the probability of frustrating action relative to other target fiscal year-ends. This average marginal effect is significant at the one percent level and suggests that, in the post-Cadbury environment, incumbent CEOs perceive target stockholders as being more easily persuaded, genuinely or otherwise, that frustrating action is in their best interests, and not motivated more by the potential for incumbent CEO entrenchment than other types of bid resistance. Such an interpretation is broadly consistent with the theoretical predictions of Berkovitch and Khanna (1990). Our prior results suggest, however, that this general perception grows with more incumbent CEO control. We are therefore led to believe that the post-Cadbury environment is more of a cover for incumbent CEOs to trigger frustrating action for their own ends than an instigator for them to trigger it for the advantage of target stockholders.

3.2 Effect of censoring other takeover bids

The relative importance of initial offer and target characteristics for predicting frustrating action in hostile takeover bids can be incorrectly estimated without accounting for the effect of censoring other takeover bids. This is because initial offer and target characteristics can be correlated with unobservable factors, such as the potential for incumbent CEO entrenchment and private information about the potential for target undervaluation, that jointly predict frustrating action in hostile takeover bids and general hostility in takeover bids. Of particular concern for our basic likelihood models is the possibility that incumbent CEOs threaten to trigger frustrating action during private negotiations leading to friendly takeover bids.

To address and discuss the relevance of these issues, in Column (1) of Table 6, we present average marginal effects from a probit regression, with sample selection, for the probability of frustrating action in hostile takeover bids. This probit regression is equivalent to the basic likelihood model upon which we base the discussion of Section 3.1. In Column (2) of Table 6, we present average marginal effects from a sample selection regression for the probability of general hostility in takeover bids. The dependent variable for this sample selection regression equals one for hostile takeover bids and zero for other takeover bids. Because of manual data collection limitations for the variables that proxy for incumbent CEO control, the sample selection regression includes, equivalent, initial offer and target characteristics through to target leverage in the probit regression. However, as for the probit regression, the sample selection regression includes the post-Cadbury variable to proxy for a wholesale lessening of incumbent CEO control. To differentiate the sample selection regression from the probit regression, we include in the sample selection regression, and exclude from the probit regression, variables for bid rumors and mandatory initial offers. The first of these variables equals one for takeover bids with bid rumors in the RNS and zero for other takeover bids, and the second variable equals one for takeover bids with mandatory initial offers in the RNS, when initial would-be acquirers raise their target toeholds to at least thirty percent, and zero for other takeover bids. It is our expectation that these variables are important, positive, predictors of general hostility in takeover bids because bid rumors are normally an indication that approaches by initial would-be acquirers have failed to result in friendly takeover bids, and because mandatory initial offers are generally associated with unsolicited takeover bids. However, we have no a-priori reason to suspect that these variables are also relevant when it comes to differentiating between frustrating action and other types of resistance in hostile takeover bids.

A test for the effect of censoring other takeover bids is insignificant. This test result suggests that we can examine the relative importance of initial offer and target characteristics for predicting frustrating action in hostile takeover bids independently of doing the same for general hostility in takeover bids. We have all the more reason for doing so given that initial offer and target characteristics are insignificantly correlated with unobservable factors that, insignificantly, jointly predict frustrating action in hostile takeover bids and general hostility in takeover bids. That is, given that the estimates for initial offer and target characteristics for the basic likelihood model are, for all intents and purposes, unaffected after accounting for the effect of censoring other takeover bids.

The probit and sample selection regressions, however, reveal that the relationships between initial offer and target characteristics and the probability of general hostility in takeover bids have clearer motivational implications when it comes to also differentiating between frustrating action and other types of resistance in hostile takeover bids. For initial offer characteristics, the results show that hostile takeover bids are associated with lower initial offer premiums than other takeover bids. The average marginal effect for the initial offer premium on the probability of general hostility is significant at the five percent level. Although this relationship provides support for the suggestion that general hostility is motivated by the potential for price improvements from initial offers (see Jennings and Mazzeo, 1993; Bates and Becher, 2017), this motive would seem to have less to do with frustrating action than other types of bid resistance. The results also reveal that hostile takeover bids are associated more with initial cash-only offers than other takeover bids, possibly because cash offers signal target undervaluation. The average marginal effect for an initial cash-only offer, relative to other initial offers, on the probability of general hostility is significant at the one percent level. Although this relationship suggests that general hostility is motivated by target undervaluation and, hence, the potential for price improvements from initial offers, this motive would seem to have less to do with frustrating action than other types of bid resistance.

For target characteristics that proxy for information asymmetry and, hence, the potential for undervaluation, the results show that hostile takeover bids are associated less with newly-listed targets, and, thus, less with target information asymmetry, than other takeover bids. The average marginal effect for a newly-listed target, relative to other targets, on the probability of general hostility is significant at the five percent level. Also, the results reveal that hostile takeover bids are associated with lower target stock volatility, and, thus, with less target information asymmetry, than other takeover bids. The average marginal effect for the target's stock volatility on the probability of general hostility is significant at the one percent level. Also, the results show that hostile takeover bids are associated with larger targets, and, thus, with less target information asymmetry, than other takeover bids. The average marginal effect for the target's size on the probability of general hostility is significant at the one percent level. In contrast, hostile takeover bids are also associated with lower target leverage than other takeover bids. The average marginal effect for the target's leverage on the probability of general hostility is significant at the one percent level. Hostile takeover bids are not, however, associated with significantly different target financial slack from other takeover bids. Although the first three of these relationships provide support for the suggestion that general hostility is not motivated by target information asymmetry and, hence, the potential for undervaluation (see Jennings and Mazzeo, 1993), this motive would seem to have less to do with frustrating action than other types of bid resistance.

The relationships between target characteristics that proxy for CEO inefficiency and the probability of general hostility in takeover bids also have clearer motivational implications when it comes to differentiating between frustrating action and other types of resistance in hostile takeover bids. These results show that hostile takeover bids are associated with worse target stock performance, and, thus, with more incumbent CEO inefficiency, than other takeover bids. The average marginal effect for the target's stock performance on the probability of general hostility is significant at the one percent level. Also, the results reveal that hostile takeover bids are associated with lower target market-to-book ratios, and, thus, with more incumbent CEO inefficiency, than other takeover bids. The average marginal effect for the target's market-to-book ratio on the probability of general hostility is significant at the five percent level. Hostile takeover bids are not, however, associated with significantly different target asset-turnover ratios from other takeover bids. Although the first two of these relationships provide support for the suggestion that general hostility is also motivated by incumbent CEO inefficiency and, hence, the potential for entrenchment (see Mørck, Shleifer, and Vishny, 1988), this motive would seem to have more to do with frustrating action than other types of bid resistance.

Lastly, the relationship between the post-Cadbury variable and the probability of general hostility in takeover bids also has clearer motivational implications when it comes to differentiating between frustrating action and other types of resistance in hostile takeover bids. Hostile takeover bids are associated less with post-Cadbury target fiscal year-ends, and, thus, less with a wholesale lessening of incumbent CEO control, than other takeover bids. The average marginal effect for a post-Cadbury target fiscal year-end, relative to other target fiscal year-ends, on the probability of general hostility is significant at the one percent level. Although this relationship suggests that general hostility is also motivated by incumbent CEO control and, hence, the potential for entrenchment, this motive would seem to have more to do with frustrating action than other types of bid resistance.

For the variables that are exclusive to the sample selection regression, the results show that hostile takeover bids are associated significantly more with bid rumors and mandatory initial offers than other takeover bids.

4. Frustrating action and target stockholder wealth effects of hostile takeover bids

It would seem that incumbent CEOs are more likely to trigger frustrating action as a ploy for their own ends than for the advantage of target stockholders. In this section, we examine whether the motivational implications for this type of resistance are reflected in the target stockholder wealth effects of hostile takeover bids. We present and discuss results from basic models for the expected target stockholder wealth effects in Section 4.1, and do the same in Section 4.2 for the actual target stockholder wealth effects. Also, we account for the effects of censoring other takeover bids and treating the type of bid resistance as being exogenous in Sections 4.3 and 4.4, respectively. The independent variable of main interest for all models equals one for hostile takeover bids with frustrating action and zero for other hostile takeover bids. All models also include initial offer and target characteristics, and the controls for four target industries, and are, for all intents and purposes, unaffected by the inclusion or otherwise of the controls for bid announcement years. Also, we add the variables for multiple would-be acquirers and failed takeover bids to the models for the actual target stockholder wealth effects.

4.1 Expected target stockholder wealth effects

In Columns (1) to (4) of Table 7, we present coefficients from linear regressions for the expected target stockholder wealth effects of hostile takeover bids. We model the expected target stockholder wealth effect as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. The results in Column (4), upon which we base the discussion, blend the strongest of these functions.

For the independent variable of main interest, the results show that hostile takeover bids with frustrating action are not associated with significantly different expected target stockholder wealth effects from other hostile takeover bids. Assuming that investors are able to accurately predict frustrating action in hostile takeover bids, there are two plausible interpretations of this result. Either, investors do not believe that incumbent CEOs are more likely to trigger frustrating action as a ploy for their own ends than for the advantage of target stockholders. Or, before the triggering of frustrating action, investors are undecided about the motivational implications for this type of bid resistance.

4.2 Actual target stockholder wealth effects

In Columns (1) to (4) of Table 8, we present coefficients from linear regressions for the actual target stockholder wealth effects of hostile takeover bids. We model the actual target stockholder wealth effect as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. The results in Column (4), upon which we base the discussion, blend the strongest of these functions.

For the independent variable of main interest, the results show that hostile takeover bids with frustrating action are associated with smaller actual target stockholder wealth effects than other hostile takeover bids. Frustrating action is associated with a 19.13 percentage-points decrease in the actual target stockholder wealth effect relative to other types of bid resistance. This coefficient is significant at the five percent level and is indicative of investor realization that incumbent CEOs are more likely to have triggered frustrating action as a ploy for their own ends than for the advantage of target stockholders. Given that we now include the variables for multiple would-be acquirers and failed takeover bids, this result is also independent of these bid characteristics. Both hostile takeover bids with multiple would-be acquirers and failed hostile takeover bids are not, however, associated with significantly different actual target stockholder wealth effects from other hostile takeover bids.

4.3 Effect of censoring other takeover bids

The extent to which the motivational implications for frustrating action are reflected in the target stockholder wealth effects of hostile takeover bids can be incorrectly estimated without accounting for the effect of censoring other takeover bids. This is because the type of resistance can be correlated with unobservable factors, such as the potential for incumbent CEO entrenchment and private information about the potential for target undervaluation, that are jointly associated with the target stockholder wealth effects of hostile takeover bids and the probability of general hostility in takeover bids. Of particular concern for our basic models for the target stockholder wealth effects is the possibility that incumbent CEOs threaten to trigger frustrating action during private negotiations leading to friendly takeover bids.

To address and discuss the relevance of these issues, in Columns (1) and (3) of Table 9, we present coefficients from linear regressions, with sample selection, for the expected and actual target stockholder wealth effects, respectively, of hostile takeover bids. These linear regressions are equivalent to the basic models for the expected and actual target stockholder wealth effects upon which we base the discussions of Sections 4.1 and 4.2, respectively. In Columns (2) and (4) of Table 9, we present average marginal effects from sample selection regressions for the probability of general hostility in takeover bids. These sample selection regressions are equivalent to the sample selection regression in Section 3.2. The variables that are exclusive to the sample selection regressions now also include the post-Cadbury variable. This proxy for a wholesale lessening of incumbent CEO control is an important, negative, predictor of general hostility in takeover bids. However, we have no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also relevant when it comes to differences in the target stockholder wealth effects of hostile takeover bids.[6]

Tests for the effect of censoring other takeover bids are insignificant. These test results suggest that we can examine whether the motivational implications for frustrating action are reflected in the target stockholder wealth effects of hostile takeover bids independently of predicting general hostility in takeover bids. We have all the more reason for doing so given that the type of resistance is insignificantly correlated with unobservable factors that are, insignificantly, jointly associated with the target stockholder wealth effects of hostile takeover bids and the probability of general hostility in takeover bids. That is, given that the estimates for frustrating action for the basic models for the target stockholder wealth effects are, for all intents and purposes, unaffected after accounting for the effect of censoring other takeover bids.

4.4 Effect of treating the type of bid resistance as being exogenous

The extent to which the motivational implications for frustrating action are reflected in the target stockholder wealth effects of hostile takeover bids can also be incorrectly estimated without accounting for the effect of treating the type of resistance as being exogenous. This is because the type of resistance can be correlated with unobservable factors, such as the potential for incumbent CEO entrenchment and private information about the

[6] We use Heckman maximum likelihood to estimate the linear regressions with sample selection. For all intents and purposes, however, the results are unaffected if we alternatively use Heckman two-step consistent estimates.

potential for target undervaluation, that are associated with the target stockholder wealth effects of hostile takeover bids.

To address and discuss the relevance of these issues, in Columns (1) and (3) of Table 10, we present coefficients from linear regressions, with instrumental variables, for the expected and actual target stockholder wealth effects, respectively, of hostile takeover bids. Except for instrumenting the type of resistance with the probability of frustrating action in hostile takeover bids, these linear regressions are equivalent to the basic models for the expected and actual target stockholder wealth effects upon which we base the discussions of Sections 4.1 and 4.2, respectively. In Columns (2) and (4) of Table 10, we present average marginal effects from probit regressions for the probability of frustrating action in hostile takeover bids. These probit regressions are equivalent to the probit regression of main focus in Section 3.1, except that now the corresponding linear regressions determine the inclusion of the variables for multiple would-be acquirers and failed takeover bids, and the functional forms of the relationships between the probability of frustrating action and incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding. The post-Cadbury variable is exclusive to the probit regressions. This proxy for a wholesale lessening of incumbent CEO control is an important, positive, predictor of frustrating action in hostile takeover bids. However, we have no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also directly relevant when it comes to differences in the target stockholder wealth effects of hostile takeover bids.[7]

Tests for the effect of treating the type of bid resistance as being exogenous are insignificant and significant for the expected and actual target stockholder wealth effects, respectively. These test results suggest that we can and cannot examine whether the

[7] See Angrist and Pischke (2008, pp. 142-144) for a discussion of this econometric approach. We use two-stage least squares to estimate the linear regressions with instrumental variables. For all intents and purposes, however, the results are unaffected if we alternatively use limited information maximum likelihood and generalized method of moments.

motivational implications for frustrating action are reflected in the expected and actual target stockholder wealth effects, respectively, of hostile takeover bids without instrumenting for the type of resistance. The estimates for frustrating action for the basic models for the expected and actual target stockholder wealth effects are, however, for all intents and purposes, unaffected after accounting for the effect of treating the type of bid resistance as being exogenous. Tests for the strength of instrumenting the type of bid resistance with the probability of frustrating action generate reliably strong statistics.

In the probit regressions, the, exclusive, post-Cadbury variable remains as an important, positive, predictor of frustrating action in hostile takeover bids after the inclusion of the variables for multiple would-be acquirers and failed takeover bids. For these additional variables, the results show that hostile takeover bids with frustrating action are associated less with multiple would-be acquirers and failed takeover bids than other hostile takeover bids, but significantly so only for multiple would-be acquirers. The result for multiple would-be acquirers gives added substance to the suggestion that frustrating action is motivated less by the potential for price improvements from initial offers, no matter whether other would-be acquirers are killed-off by frustrating action.

5. Frustrating action and incumbent CEO turnover after hostile takeover bids

Investors would seem to come to the conclusion that incumbent CEOs are more likely to have triggered frustrating action as a ploy for their own ends than for the advantage of target stockholders. In this section, we examine whether the motivational implications for this type of resistance are also reflected in the rate of incumbent CEO turnover after hostile takeover bids. We present and discuss results from basic likelihood models in Section 5.1, and do the same in Sections 5.2 and 5.3 for likelihood models that account for the effects of censoring other takeover bids and treating the type of bid resistance as being exogenous, respectively. All models also include bid and target characteristics, and the controls for four target industries, and are, for all intents and purposes, unaffected by the inclusion or otherwise of the controls for bid announcement years.

5.1 Basic likelihood models

In Columns (1) to (5) of Table 11, we present average marginal effects from probit regressions for the probability of incumbent CEO turnover after hostile takeover bids. We model the probability of incumbent CEO turnover as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. The results in Columns (4) and (5), upon which we base the discussion, blend the strongest of these functions.

For the independent variable of main interest in Column (4), the results show that hostile takeover bids with frustrating action are associated more with incumbent CEO turnover than other hostile takeover bids. Frustrating action is associated with a 27.31 percentage-points increase in the probability of incumbent CEO turnover after hostile takeover bids relative to other types of resistance. This average marginal effect is significant at the one percent level and suggests that hostile takeover bids with frustrating action are more likely to be disciplinary than other hostile takeover bids. Given that we include the variables for multiple would-be acquirers and failed takeover bids, this result is also independent of these bid characteristics. Both hostile takeover bids with multiple would-be acquirers and failed hostile takeover bids are associated less with incumbent CEO turnover than other hostile takeover bids, but significantly so only for failed hostile takeover bids.

In Column (5), we add an interaction term between the variable of main interest and the variable for failed takeover bids. The result for the interaction term shows that failed hostile takeover bids with frustrating action are also associated more with incumbent CEO turnover than other failed hostile takeover bids. Frustrating action is associated with a 38.13 percentage-points increase in the probability of incumbent CEO turnover after failed hostile takeover bids relative to other types of resistance. This average marginal effect is significant at the one percent level and is indicative of surviving incumbent boards and investors acting on the realization that incumbent CEOs are more likely to have triggered frustrating action as a ploy for their own ends than for the advantage of target stockholders. Klein and Rosenfeld (1988) and Denis (1990) present empirical analysis with much the same interpretation, but do so only for selective forms of frustrating action and with no control group for other types of bid resistance.

Conditional on having triggered frustrating action, however, incumbent CEOs are significantly (28.84 percentage-points) more likely to survive after failed hostile takeover bids, which gives added substance to the suggestion that frustrating action is motivated more by the potential for incumbent CEO entrenchment.

5.2 Effect of censoring other takeover bids

The extent to which the motivational implications for frustrating action are reflected in the rate of incumbent CEO turnover after hostile takeover bids can be incorrectly estimated without accounting for the effect of censoring other takeover bids. This is because the type of resistance can be correlated with unobservable factors, such as the potential for incumbent CEO entrenchment and private information about the potential for target undervaluation, that are jointly associated with the probability of incumbent CEO turnover after hostile takeover bids and the probability of general hostility in takeover bids. Of particular concern for our basic likelihood models is the possibility that incumbent CEOs threaten to trigger frustrating action during private negotiations leading to friendly takeover bids.

To address and discuss the relevance of these issues, in Column (1) of Table 12, we present average marginal effects from a probit regression, with sample selection, for the probability of incumbent CEO turnover after hostile takeover bids. This probit regression is equivalent to the basic likelihood model upon which we base the initial discussion of Section

5.1. In Column (2) of Table 12, we present average marginal effects from a sample selection regression for the probability of general hostility in takeover bids. This sample selection regression is equivalent to the sample selection regression in Section 3.2. The variables that are exclusive to the sample selection regression now also include the post-Cadbury variable. This proxy for a wholesale lessening of incumbent CEO control is an important, negative, predictor of general hostility in takeover bids. However, we have no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also relevant when it comes to differences in the probability of incumbent CEO turnover after hostile takeover bids.

A test for the effect of censoring other takeover bids is insignificant. This test result suggests that we can examine whether the motivational implications for frustrating action are reflected in the rate of incumbent CEO turnover after hostile takeover bids independently of predicting general hostility in takeover bids. We have all the more reason for doing so given that the type of resistance is insignificantly correlated with unobservable factors that are, insignificantly, jointly associated with the probability of incumbent CEO turnover after hostile takeover bids and the probability of general hostility in takeover bids. That is, given that the estimate for frustrating action for the basic likelihood model is, for all intents and purposes, unaffected after accounting for the effect of censoring other takeover bids.

5.3 Effect of treating the type of bid resistance as being exogenous

The extent to which the motivational implications for frustrating action are reflected in the rate of incumbent CEO turnover after hostile takeover bids can also be incorrectly estimated without accounting for the effect of treating the type of resistance as being exogenous. This is because the type of resistance can be correlated with unobservable factors, such as the potential for incumbent CEO entrenchment and private information about the potential for target undervaluation, that are associated with the probability of incumbent CEO turnover after hostile takeover bids. Also of concern is the reverse possibility that the predicted rate of incumbent CEO turnover is the cause of the motivational implications for frustrating action.[8]

To address and discuss the relevance of these issues, in Column (1) of Table 13, we present average marginal effects from a probit regression, with an instrumental variable, for the probability of incumbent CEO turnover after hostile takeover bids. Except for instrumenting the type of resistance with the probability of frustrating action in hostile takeover bids, this probit regression is equivalent to the basic likelihood model upon which we base the initial discussion of Section 5.1. In Column (2) of Table 13, we present average marginal effects from a probit regression for the probability of frustrating action in hostile takeover bids. This probit regression is equivalent to the probit regression of main focus in Section 3.1, except that now the probit regression for incumbent CEO turnover determines the inclusion of the variables for multiple would-be acquirers and failed takeover bids, and the functional forms of the relationships between the probability of frustrating action and incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding. The post-Cadbury variable is exclusive to the probit regression for frustrating action. This proxy for a wholesale lessening of incumbent CEO control is an important, positive, predictor of frustrating action in hostile takeover bids. However, we have no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also directly relevant when it comes to differences in the probability of incumbent CEO turnover after hostile takeover bids.[9]

A test for the effect of treating the type of bid resistance as being exogenous is insignificant. This test result suggests that we can examine whether the motivational implications for frustrating action are reflected in the rate of incumbent CEO turnover after

[8] Harford (2003) presents empirical results showing that general hostility in takeover bids is a precursor of a higher rate of incumbent managerial turnover.

[9] We use maximum likelihood to estimate the probit regression with an instrumental variable. For all intents and purposes, however, the results are unaffected if we alternatively use Newey two-step consistent estimates.

hostile takeover bids without instrumenting for the type of resistance. The estimate for frustrating action for the basic likelihood model is, however, for all intents and purposes, unaffected after accounting for the effect of treating the type of bid resistance as being exogenous.

6. Conclusion

In this study, we examine the motivational implications for frustrating action in hostile takeover bids. Our findings suggest that frustrating action is motivated less by target undervaluation and the potential for price improvements from initial offers than other types of bid resistance. Also, frustrating action would seem to be motivated more by incumbent CEO inefficiency and control and, hence, the potential for entrenchment than other types of bid resistance. The relationships between initial offer and target characteristics and the probability of general hostility in takeover bids have clearer motivational implications when it comes to also differentiating between frustrating action and other types of resistance in hostile takeover bids.

We also find that the motivational implications for frustrating action are reflected in smaller target stockholder wealth effects of hostile takeover bids, and in a higher rate of incumbent CEO turnover after hostile takeover bids, than for other types of resistance. It would seem that investors, successful acquirers, and surviving incumbent boards come to the conclusion that incumbent CEOs are more likely to have triggered frustrating action as a ploy for their own ends than for the advantage of target stockholders.

Our findings add to the ongoing debate about the legitimacy of hostility in takeover bids by suggesting that there should be limitations on the ability of incumbent CEOs to trigger frustrating action. Interestingly, however, and with hostile takeover bids on the rise once more, it would seem that incumbent CEOs are turning, voluntarily or otherwise, to more gentle types of bid resistance.[10]

[10] See A new kind of defense against hostile bids, New York Times, September 29, 2010.

References

Agrawal, A. and Walkling, R.A., 1994, Executive careers and compensation surrounding takeover bids, Journal of Finance, 49, pp. 985-1014.

Angrist, J.D. and Pischke, J.-S., 2008, Mostly Harmless Econometrics: An Empiricist's Companion, Princeton University Press.

Baron, D.P., 1983, Tender offers and management resistance, Journal of Finance, 38, pp. 331-343.

Bates, T.W. and Becher, D.A., 2017, Bid resistance by takeover targets: managerial bargaining or bad faith?, Journal of Financial and Quantitative Analysis, 52, pp. 837-866.

Berkovitch, E. and Khanna, N., 1990, How target shareholders benefit from value-reducing defensive strategies in takeovers, Journal of Finance, 45, pp. 137-156.

Cain, M.D., McKeon, S.B., and Solomon, S.D., 2017, Do takeover laws matter? Evidence from five decades of hostile takeovers, Journal of Financial Economics, 124, pp. 464-485.

Cotter, J.F., Shivdasani, A., and Zenner, M., 1997, Do independent directors enhance target stockholder wealth during tender offers?, Journal of Financial Economics, 43, pp. 195-218.

Cotter, J.F. and Zenner, M., 1994, How managerial wealth affects the tender offer process, Journal of Financial Economics, 35, pp. 63-97.

Cuñat, V., Giné, M., and Guadalupe, M., 2017, Price and probability: decomposing the takeover effects of anti-takeover provisions, CEPR Discussion Paper No. DP12059, available at SSRN, https://ssrn.com/abstract=2971980.

Dahya, J., Golubov, A., Petmezas, D., and Travlos, N.G., 2016, Governance mandates, outside directors, and acquirer performance, Journal of Corporate Finance, forthcoming.

Dahya, J. and McConnell, J.J., 2007, Board composition, corporate performance, and the Cadbury Committee recommendation, Journal of Financial and Quantitative Analysis, 42, pp. 535-564.

Dann, L.Y. and DeAngelo, H., 1988, Corporate financial policy and corporate control: a study of defensive adjustments in asset and ownership structure, Journal of Financial Economics, 20, pp. 87-127.

Denis, D.J., 1990, Defensive changes in corporate payout policy: share repurchases and special dividends, Journal of Finance, 45, pp. 1433-1456.

Denis, D.J. and Serrano, J.M., 1996, Active investors and management turnover following unsuccessful control contests, Journal of Financial Economics, 40, pp. 239-266.

Dimopoulos, T. and Sacchetto, S., 2014, Preemptive bidding, target resistance, and takeover premiums, Journal of Financial Economics, 114, pp. 444-470.

Franks, J. and Mayer, C., 1996, Hostile takeovers and the correction of managerial failure, Journal of Financial Economics, 40, pp. 163-181.

Harford, J., 2003, Takeover bids and target directors' incentives: the impact of a bid on directors' wealth and board seats, Journal of Financial Economics, 69, pp. 51-83.

Heron, R.A. and Lie, E., 2006, On the use of poison pills and defensive payouts by takeover targets, Journal of Business, 79, pp. 1783-1807.

Hirshleifer, D. and Thakor, A.V., 1994, Managerial performance, boards of directors, and takeover bidding, Journal of Corporate Finance, 1, pp. 63-90.

Hirshleifer, D. and Titman, S., 1990, Share tendering strategies and the success of hostile takeover bids, Journal of Political Economy, 98, pp. 295-324.

Huang, Y.-S. and Walkling, R.A., 1987, Target abnormal returns associated with acquisition announcements: payment, acquisition form, and managerial resistance, 19, Journal of Financial Economics, pp. 329-349.
Jarrell, G.A., 1985, The wealth effects of litigation by targets: do interests diverge in a merge?, Journal of Law and Economics, 28, pp. 151-177.
Jennings, R.H. and Mazzeo, M.A., 1993, Competing bids, target management resistance, and the structure of takeover bids, Review of Financial Studies, 6, pp. 883-909.
Jenter, D. and Lewellen, K., 2015, CEO preferences and acquisitions, Journal of Finance, 70, pp. 2813-2852.
Karpoff, J.M., Schonlau, R.J., and Wehrly, E.W., 2017, Do takeover defense indices measure takeover deterrence?, Review of Financial Studies, 30, pp. 2359-2412.
Kini, O., Kracaw, W., and Mian, S., 2004, The nature of discipline by corporate takeovers, Journal of Finance, 59, pp. 1511-1552.
Klein, A. and Rosenfeld, J., 1988, Targeted share repurchases and top management changes, Journal of Financial Economics, 20, pp. 493-506.
Malmendier, U., Opp, M.M., and Saidi, F., 2016, Target revaluation after failed takeover attempts: cash versus stock, Journal of Financial Economics, 119, pp. 92-106.
Martin, K.J. and McConnell, J.J., 1991, Corporate performance, corporate takeovers, and management turnover, Journal of Finance, 46, pp. 671-687.
Mikkelson, W.H. and Partch, M.M., 1989, Managers' voting rights and corporate control, Journal of Financial Economics, 25, pp. 263-290.
Moeller, T., 2005, Let's make a deal! How stockholder control impacts merger payoffs, Journal of Financial Economics, 76, pp. 167-190.
Mørck, R., Shleifer, A., and Vishny, R.W., 1988, Characteristics of targets of hostile and friendly takeovers, in Auerbach, A.J., Corporate Takeovers: Causes and Consequences, University of Chicago Press, pp. 101-129.
Ruback, R.S., 1987, An overview of takeover defenses, in Auerbach, A.J., Mergers and Acquisitions, University of Chicago Press, pp. 49-67.
Ryngaert, M. and Scholten, R., 2010, Have changing takeover defense rules and strategies entrenched management and damaged shareholders? The case of defeated takeover bids, Journal of Corporate Finance, 16, pp. 16-37.
Schwert, G.W., 2000, Hostility in takeovers: in the eyes of the beholder?, Journal of Finance, 55, pp. 2599-2640.
Shivdasani, A., 1993, Board composition, ownership structure, and hostile takeovers, Journal of Accounting and Economics, 16, pp. 167-198.
Shleifer, A. and Vishny, R.W., 1986, Large shareholders and corporate control, Journal of Political Economy, 94, pp. 461-488.
Stulz, R.M., 1988, Managerial control of voting rights: financing policies and the market for corporate control, Journal of Financial Economics, 20, pp. 25-54.

Appendix

Table A1
Definitions for bid and target characteristics of hostile takeover bids

This table defines bid and target characteristics of hostile takeover bids. For the dependent variables, the expected target stockholder wealth effects of hostile takeover bids are measured from before rumors through to initial offer announcements, whereas the measurement periods for the actual target stockholder wealth effects span the entire durations of hostile takeover bids, and one year after for failed hostile takeover bids. Also for the dependent variables, incumbent CEO turnover is instigated after hostile takeover bids by successful acquirers and by surviving incumbent boards and investors within one year of, and, thus, within relatively close proximity to, failed hostile takeover bids. As for the expected target stockholder wealth effects, for the independent variables for bid characteristics, initial offer premiums are also measured from before rumors of hostile takeover bids. For the independent variables that proxy for target information asymmetry target size is converted into natural logarithmic form in the modelling parts of the empirical analysis. Lastly, for the independent variables that proxy for incumbent CEO control, linear, curvilinear, and natural logarithmic forms for incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding are alternated between in the modelling parts of the empirical analysis. Also, although the post-Cadbury environment is associated with a wholesale lessening of incumbent CEO control, none of the proxies for incumbent CEO control equate to specific Cadbury recommendations. In particular, one of the recommendations is for incumbent CEOs and chairpersons to be separate directors, but not specifically for incumbent chairpersons to be independent directors. Also, the recommendations do not specifically require that independent directors be seated on at least one other board. The variables for target characteristics are measured and captured before rumors to ensure that the proxies for information asymmetry and CEO inefficiency and control are consistently in the absence of hostile takeover bids.

Bid and target characteristics	Definitions
	Dependent variables
Expected target stockholder wealth effect	Target market-adjusted returns from before rumors through to initial offer announcements of hostile takeover bids. Measured using the Datastream database with the FTSE All Share as the market benchmark.
Actual target stockholder wealth effect	Target market-adjusted returns from before rumors through to the ends of hostile takeover bids, and one year after for failed hostile takeover bids. Measured using the Datastream database with the FTSE All Share as the market benchmark.
Incumbent CEO turnover	Equals one for hostile takeover bids with incumbent CEO turnover afterwards in the Regulatory News Service (RNS), and within one year of failed hostile takeover bids, and zero for other hostile takeover bids.
	Independent variables
Bid characteristics	
Multiple would-be acquirer	Equals one for hostile takeover bids with improved offers from other would-be acquirers in the RNS and zero for other hostile takeover bids.
Failed takeover bid	Equals one for hostile takeover bids with withdrawn ends in the RNS and zero for other hostile takeover bids.
Initial offer premium	Proportionate differences between initial offer prices and the target stock price before rumors of hostile takeover bids. Measured using the RNS and the Datastream database.
Initial cash-only offer	Equals one for hostile takeover bids with initial cash-only offers in the RNS and zero for other hostile takeover bids.

Table A1 continued
Definitions for bid and target characteristics of hostile takeover bids

Bid and target characteristics	Definitions
	Independent variables
Proxies for target information asymmetry	
Newly-listed target	Equals one for hostile takeover bids with newly-listed targets in the Corporate Register before rumors and zero for other hostile takeover bids.
Target stock volatility	Target standard deviations of daily market-adjusted returns for one year before rumors of hostile takeover bids. Measured using the Datastream database with the FTSE All Share as the market benchmark.
Target financial slack	Target cash-to-assets ratios averaged over two fiscal year-ends before rumors of hostile takeover bids. Measured using the Datastream database.
Target size	Target market values of assets (in real, 2003, GBP million) averaged over two fiscal year-ends before rumors of hostile takeover bids. Measured using the Datastream database.
Target leverage	Target debt-to-assets ratios averaged over two fiscal year-ends before rumors of hostile takeover bids. Measured using the Datastream database.
Proxies for incumbent CEO inefficiency	
Target asset-turnover ratio	Target sales-to-assets ratios averaged over two fiscal year-ends before rumors of hostile takeover bids. Measured using the Datastream database.
Target stock performance	Target market-adjusted returns for one year before rumors of hostile takeover bids. Measured using the Datastream database with the FTSE All Share as the market benchmark.
Target market-to-book ratio	Target market-to-book ratios of assets averaged over two fiscal year-ends before rumors of hostile takeover bids. Measured using the Datastream database.
Proxies for incumbent CEO control	
Incumbent CEO age	Incumbent CEO age in the Corporate Register before rumors of hostile takeover bids.
Incumbent CEO stockholding	Incumbent CEO stockholdings (in percent) in RNS filings before rumors of hostile takeover bids.
Other incumbent directors stockholding	Other incumbent directors stockholdings (in aggregate percent) in RNS filings before rumors of hostile takeover bids.
Independent incumbent chairperson	Equals one for hostile takeover bids with independent incumbent chairpersons in RNS filings before rumors and zero for other hostile takeover bids. No other apparent target connections, and seated on the board of at least one other firm, also listed on the main London market, in the Corporate Register before bid rumors.
Incumbent board size	Numbers of incumbent directors in RNS filings before rumors of hostile takeover bids.
Initial would-be acquirer with interlocking/siding incumbent director	Equals one for hostile takeover bids with initial would-be acquirers with interlocking/siding incumbent directors in the RNS and zero for other hostile takeover bids.
Target outside blockholdings	Target outside blockholdings of at least five percent (in aggregate percent) in RNS filings before rumors of hostile takeover bids. No other apparent target connections.

Table 1
Sample of hostile takeover bids

This table presents descriptive statistics for sample time series. To construct the sample of hostile takeover bids, the starting point is takeover offers in the Securities Data Corporation database for UK public firms that are announced between July 1, 1989 and December 31, 2003. The Corporate Register, first published in March 1989 and thereafter in six month intervals, is used to exclude takeover offers for targets that are not listed on the main London market and that belong to one of the following more regulated industries: financials; utilities; telecommunications; broadcasting; newspapers; public transport. Initial offers are announced at least one year after prior takeover bids and are for at least fifty percent of the target stock. Takeover bids begin from rumors and extend to improved offers from initial and other would-be acquirers announced within one year of prior takeover offers. These screening and merging procedures for takeover offers are carried out using the Regulatory News Service (RNS). Merging takeover offers in this way ensures that the actual target stockholder wealth effects of failed hostile takeover bids are consistently measured, and that incumbent CEO turnover after failed hostile takeover bids is consistently captured, in the absence of takeover offers for at least one year. Hostile takeover bids have RNS announcements in which incumbent CEOs reject initial offers. Other takeover bids are censored, but the effect of doing so is accounted for in the modelling parts of the empirical analysis. Panel A presents sample time series, by bid (initial offer) announcement years, for the frequencies of all takeover bids and hostile takeover bids, and Panel B does the same for the aggregate sizes of targets (in real, 2003, GBP million). Target size is defined in Table A1 of the Appendix. In 1993, the corporate governance recommendations of the Cadbury Report were incorporated into the listing requirements of the main London market. The post-Cadbury environment makes it mandatory for incumbent boards to state the extent of their compliance with recommendations intended to lessen CEO control and is associated with a wholesale lessening of incumbent CEO control.

Panel A: Frequencies of takeover bids

Bid announcement years	All takeover bids (1)	Hostile takeover bids (2)	Proportions for hostile takeover bids (3)
1989	42	13	0.3095
1990	55	15	0.2727
1991	58	17	0.2931
1992	32	11	0.3438
1993	27	5	0.1852
1994	33	5	0.1515
1995	41	8	0.1951
1996	39	8	0.2051
1997	73	7	0.0959
1998	85	8	0.0941
1999	119	12	0.1008
2000	82	7	0.0854
2001	34	5	0.1471
2002	34	6	0.1765
2003	38	3	0.0789
Total	792	130	0.1641

Table 1 continued
Sample of hostile takeover bids

Panel B: Aggregate sizes of targets (in real, 2003, GBP million)				
Bid announcement years	**All takeover bids**	**Hostile takeover bids**	**Proportions for hostile takeover bids**	**Observations**
	(1)	**(2)**	**(3)**	**(4)**
1989	32,351.37	28,525.87	0.8818	37
1990	17,857.70	5,260.42	0.2946	53
1991	26,487.37	16,112.39	0.6083	56
1992	5,449.71	4,001.31	0.7342	32
1993	2,661.87	775.74	0.2914	22
1994	8,625.51	5,733.94	0.6648	30
1995	25,192.68	19,030.70	0.7554	38
1996	11,291.71	3,523.25	0.3120	34
1997	17,802.34	8,560.41	0.4809	69
1998	42,226.63	4,085.01	0.0967	78
1999	52,204.45	5,234.05	0.1003	115
2000	106,577.50	6,332.86	0.0594	79
2001	8,899.71	5,575.99	0.6265	33
2002	15,028.02	634.29	0.0422	31
2003	20,055.11	10,938.58	0.5454	35
Total	392,711.67	124,324.80	0.3166	742

Table 2
Bid and target characteristics of hostile takeover bids
This table presents descriptive statistics for the bid and target characteristics of hostile takeover bids. Bid and target characteristics are defined in Table A1 of the Appendix. The modelling parts of the empirical analysis are, for all intents and purposes, unaffected if the dependent and independent variables are windsorized.

	Means	**Standard deviations**	**Observations**
Bid and target characteristics	**(1)**	**(2)**	**(3)**
Expected target stockholder wealth effect	0.2348	0.2569	119
Actual target stockholder wealth effect	0.2447	0.4700	120
Incumbent CEO turnover	0.4463	0.4992	121
Multiple would-be acquirer	0.1923	0.3956	130
Failed takeover bid	0.3154	0.4665	130
Initial offer premium	0.3349	0.3728	128
Initial cash-only offer	0.6769	0.4695	130
Newly-listed target	0.1628	0.3706	129
Target stock volatility	0.0220	0.0137	128
Target financial slack	0.1054	0.1527	127
Target size	986.70	2,336.59	126
Target leverage	0.5544	0.1822	127
Target asset-turnover ratio	1.3861	0.8920	127
Target stock performance	-0.3247	0.4208	128
Target market-to-book ratio	1.3185	0.5003	126
Incumbent CEO age	51.57	5.59	120
Incumbent CEO stockholding	2.72	7.26	121
Other incumbent directors stockholding	2.21	6.51	121
Independent incumbent chairperson	0.3471	0.4780	121
Incumbent board size	7.13	2.35	121
Initial would-be acquirer with interlocking/siding incumbent director	0.1231	0.3298	130
Target outside blockholdings	29.26	20.00	121

Table 3
Frustrating action in hostile takeover bids

This table presents frequencies for the triggering of frustrating action by incumbent CEOs in hostile takeover bids. The RNS is used to differentiate between frustrating action and other types of bid resistance. Unlike frustrating action, other types of bid resistance do not amount to any operational and financial transactions that make targets less valuable and more difficult to acquire. These more gentle types of bid resistance amount in the main to stakeholder communication and delaying tactics. Litigation, however, as an example of a delaying tactic, rarely occurs in UK hostile takeover bids. Also, other would-be acquirers, friendly (white knight) or otherwise, cut across hostile takeover bids with frustrating action and other hostile takeover bids. Hostile takeover bids with any form of frustrating action are shown first. The effect of treating the type of bid resistance as being exogenous is accounted for in the modelling parts of the empirical analysis. Incumbent CEOs, however, trigger several, and sometimes multiple, forms of frustrating action in hostile takeover bids. Defensive divestment is the demerging and selling of target, crown-jewel, assets. Defensive acquisition is making counter, pac-man, takeover offers, buying other firms or assets, and creating joint ventures. Defensive payout is the repurchasing of the target stock and the paying of special dividends. Golden parachute is introducing special compensation payments in the event of incumbent CEO turnover after hostile takeover bids. Defensive management buyout is taking targets private. White squire is the facilitating of alliances by acquisitions of target toeholds below the thirty percent threshold for mandatory takeover offers. The main concern for a study of frustrating action in hostile takeover bids is the pre-existence of legal provisions or mechanisms in corporate charters and States of incorporation that can give firms takeover protection. Although the effect of censoring non-targets can be accounted for, for targets, because of the pre-existence of these structural defenses, it is possible that not all bid resistance will be observed. There therefore remains the concern of incompletely differentiating between frustrating action and other types of resistance in hostile takeover bids. In contrast to the situation in the US, company laws have consistently rendered structural defenses absent in the UK. For these reasons, frustrating action is examined in UK hostile takeover bids. Also, given that the post-Cadbury environment is associated with a wholesale lessening of incumbent CEO control, incorporation of the Cadbury recommendations into the listing requirements of the main London market in 1993 was an exogenous event potentially affecting the ability of incumbent CEOs to trigger hostility and frustrating action. Differentiating between target fiscal year-ends before and after incorporation of the Cadbury recommendations into the listing requirements of the main London market can also potentially serve as a reliably strong exclusive variable for predicting general hostility in takeover bids and frustrating action in hostile takeover bids in the modelling parts of the empirical analysis that account for the effects of censoring other takeover bids and treating the type of bid resistance as being exogenous, respectively. For these reasons, frustrating action is examined in hostile takeover bids before and after the Cadbury Report in the years 1989-2003.

	Frequencies of hostile takeover bids	**Proportions of hostile takeover bids**	**Observations**
Forms of frustrating action	**(1)**	**(2)**	**(3)**
Any form of frustrating action	53	0.4077	130
Defensive divestment	26	0.2000	130
Defensive acquisition	17	0.1308	130
Defensive payout	8	0.0615	130
Golden parachute	5	0.0385	130
Defensive management buyout	5	0.0385	130
White squire	4	0.0308	130

Table 4
Predicting frustrating action in hostile takeover bids

This table presents average marginal effects from probit regressions for the probability of frustrating action in hostile takeover bids. The probability of frustrating action is modelled as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. Column (4) blends the strongest of these functions. The dependent variable for all models equals one for hostile takeover bids with frustrating action and zero for other hostile takeover bids. All models include initial offer and target characteristics, and, to proxy for a wholesale lessening of incumbent CEO control, a post-Cadbury variable that equals one for target fiscal year-ends after June 30, 1993 in the RNS before bid rumors and zero for other target fiscal year-ends. Also, all models include controls for four target industries and are, for all intents and purposes, unaffected by the inclusion or otherwise of controls for bid announcement years. The Corporate Register is used to combine target, ICB, industries into four groups as follows: (i) oil & gas and basic materials; (ii) industrials, including technology hardware & equipment; (iii) consumer goods and healthcare; (iv) consumer services, including software & computers services. Although target size and incumbent board size are highly correlated, the average marginal effects for target size remain insignificant if incumbent board size is dropped from all models. Also, the estimates for initial offer and target characteristics are, for all intents and purposes, unaffected if target size is dropped from all models. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

Initial offer and target characteristics	**Probability of frustrating action**			
	(1)	**(2)**	**(3)**	**(4)**
Initial offer premium	0.4305***	0.4589***	0.3686***	0.4447***
	(0.1048)	(0.1027)	(0.0941)	(0.0971)
Initial cash-only offer	-0.1269*	-0.1589**	-0.1462**	-0.1646**
	(0.0736)	(0.0656)	(0.0738)	(0.0674)
Newly-listed target	-0.4488***	-0.4501***	-0.4529***	-0.4484***
	(0.0311)	(0.0278)	(0.0325)	(0.0281)
Target stock volatility	-7.3131	-7.1442*	-6.2481	-7.7159*
	(4.5677)	(4.0427)	(4.3126)	(4.0747)
Target financial slack	-0.5445*	-0.6522*	-0.2479	-0.6825**
	(0.3219)	(0.3338)	(0.2930)	(0.3274)
ln(Target size)	-0.0073	-0.0007	-0.0075	-0.0026
	(0.0334)	(0.0318)	(0.0346)	(0.0319)
Target leverage	0.0758	0.1875	0.0968	0.2615
	(0.2473)	(0.2446)	(0.2432)	(0.2269)
Target asset-turnover ratio	-0.1983***	-0.2223***	-0.1845***	-0.2234***
	(0.0529)	(0.0468)	(0.0456)	(0.0477)
Target stock performance	-0.0362	0.0385	0.0089	0.0274
	(0.1105)	(0.0992)	(0.1090)	(0.0951)
Target market-to-book ratio	0.0416	0.0139	0.0010	0.0095
	(0.1102)	(0.1037)	(0.1105)	(0.1020)
Incumbent CEO age	0.0085	0.2052***		0.2127***
	(0.0066)	(0.0727)		(0.0736)
Incumbent CEO age^2		-0.0019***		-0.0020***
		(0.0007)		(0.0007)
ln(Incumbent CEO age)			0.3029	
			(0.3266)	
Incumbent CEO stockholding	0.0362***	0.0584**		0.0387***
	(0.0074)	(0.0282)		(0.0078)
Incumbent CEO stockholding^2		-0.0008		
		(0.0010)		
ln(1 + Incumbent CEO stockholding)			0.1954***	
			(0.0481)	
Other incumbent directors stockholding	-0.0713***	-0.0809		-0.0720***
	(0.0198)	(0.0521)		(0.0191)
Other incumbent directors stockholding^2		0.0006		
		(0.0047)		

Table 4 continued
Predicting frustrating action in hostile takeover bids

Initial offer and target characteristics	**Probability of frustrating action**			
	(1)	**(2)**	**(3)**	**(4)**
ln(1 + Other incumbent directors stockholding)			-0.2342***	
			(0.0786)	
Independent incumbent chairperson	-0.1369*	-0.1552**	-0.1263*	-0.1665**
	(0.0721)	(0.0710)	(0.0762)	(0.0687)
Incumbent board size	-0.0445*	-0.0519**	-0.0399*	-0.0506**
	(0.0232)	(0.0220)	(0.0210)	(0.0222)
Initial would-be acquirer with interlocking/siding incumbent director	-0.3033***	-0.3169***	-0.2691***	-0.3207***
	(0.0784)	(0.0728)	(0.0906)	(0.0718)
Target outside blockholdings	-0.0100***	-0.0113***	-0.0088***	-0.0111***
	(0.0024)	(0.0025)	(0.0024)	(0.0024)
Post-Cadbury	0.5698***	0.5565***	0.5874***	0.5568***
	(0.0361)	(0.0328)	(0.0360)	(0.0344)
Constant	0.4401***	0.4433***	0.4406***	0.4429***
	(0.0282)	(0.0262)	(0.0283)	(0.0263)
Controls for four target industries	Yes	Yes	Yes	Yes
Controls for bid announcement years	Yes	Yes	Yes	No
Chi^2 test for model significance	502.75***	630.65***	561.98***	696.13***
Pseudo R^2 statistic for model fit	51.50	54.57	49.13	54.36
Observations	119	119	119	119

Table 5

Predicting frustrating action in hostile takeover bids: Supplementary results for incumbent CEO age

This table presents probabilities of frustrating action in hostile takeover bids for ages and incremental ages of incumbent CEOs. These probabilities of frustrating action are from the probit regression in Column (4) of Table 4. Probabilities and incremental probabilities of frustrating action are shown in Columns (1) and (2), respectively. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

Incumbent CEO ages	Probabilities of frustrating action (1)	Incremental incumbent CEO ages	Incremental probabilities of frustrating action (2)
38	0.1129**		
	(0.0477)		
40	0.1686***	38-40	0.0557***
	(0.0611)		(0.0160)
42	0.2407***	40-42	0.0721***
	(0.0632)		(0.0118)
44	0.3185***	42-44	0.0778***
	(0.0539)		(0.0179)
46	0.3894***	44-46	0.0709***
	(0.0421)		(0.0215)
48	0.4458***	46-48	0.0563***
	(0.0349)		(0.0189)
50	0.4852***	48-50	0.0395***
	(0.0325)		(0.0146)
52	0.5083***	50-52	0.0231*
	(0.0322)		(0.0118)
54	0.5161***	52-54	0.0078
	(0.0332)		(0.0117)
56	0.5091***	54-56	-0.0070
	(0.0371)		(0.0143)
58	0.4869***	56-58	-0.0222
	(0.0466)		(0.0188)
60	0.4484***	58-60	-0.0385
	(0.0639)		(0.0247)
62	0.3929***	60-62	-0.0554*
	(0.0879)		(0.0300)
64	0.3227***	62-64	-0.0703**
	(0.1128)		(0.0300)
66	0.2449*	64-66	-0.0777***
	(0.1262)		(0.0194)

Table 6
Predicting frustrating action in hostile takeover bids: Effect of censoring other takeover bids
This table presents average marginal effects from a probit regression, with sample selection, for the probability of frustrating action in hostile takeover bids. Shown in Column (1), this probit regression is equivalent to the probit regression in Column (4) of Table 4. Average marginal effects from a sample selection regression for the probability of general hostility in takeover bids are shown in Column (2). The dependent variable for this sample selection regression equals one for hostile takeover bids and zero for other takeover bids. Because of manual data collection limitations for the variables that proxy for incumbent CEO control, the sample selection regression includes initial offer and target characteristics through to target leverage in the probit regression. However, as for the probit regression, the sample selection regression includes the post-Cadbury variable to proxy for a wholesale lessening of incumbent CEO control. To differentiate the sample selection regression from the probit regression, the sample selection regression includes, and the probit regression excludes, variables for bid rumors and mandatory initial offers. The first of these variables equals one for takeover bids with bid rumors in the RNS and zero for other takeover bids, and the second variable equals one for takeover bids with mandatory initial offers in the RNS, when initial would-be acquirers raise their target toeholds to at least thirty percent, and zero for other takeover bids. It is expected that these variables are important, positive, predictors of general hostility in takeover bids because bid rumors are normally an indication that approaches by initial would-be acquirers have failed to result in friendly takeover bids, and because mandatory initial offers are generally associated with unsolicited takeover bids. However, there is no a-priori reason to suspect that these variables are also relevant when it comes to differentiating between frustrating action and other types of resistance in hostile takeover bids. A test for the effect of censoring other takeover bids is shown at the bottom of the table. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

Initial offer and target characteristics	**Probability of frustrating action**	**Probability of general hostility**
	(1)	**(2)**
Initial offer premium	0.4424***	-0.1332**
	(0.1156)	(0.0618)
Initial cash-only offer	-0.1606*	0.1530***
	(0.0847)	(0.0405)
Newly-listed target	-0.4312***	-0.1287**
	(0.1366)	(0.0536)
Target stock volatility	-8.0529*	-5.4648***
	(4.5880)	(2.0664)
Target financial slack	-0.6893**	0.1131
	(0.3250)	(0.1499)
ln(Target size)	0.0003	0.0833***
	(0.0389)	(0.0144)
Target leverage	0.2535	-0.3831***
	(0.2363)	(0.1129)
Target asset-turnover ratio	-0.2264***	0.0395
	(0.0482)	(0.0277)
Target stock performance	0.0194	-0.2057***
	(0.1197)	(0.0473)
Target market-to-book ratio	0.0056	-0.1041**
	(0.1139)	(0.0431)
Incumbent CEO age	0.2127***	
	(0.0761)	
Incumbent CEO age^2	-0.0020***	
	(0.0007)	
Incumbent CEO stockholding	0.0390***	
	(0.0077)	
Other incumbent directors stockholding	-0.0729***	
	(0.0190)	
Independent incumbent chairperson	-0.1686**	
	(0.0663)	
Incumbent board size	-0.0515**	
	(0.0230)	

Table 6 continued
Predicting frustrating action in hostile takeover bids: Effect of censoring other takeover bids

Initial offer and target characteristics	**Probability of frustrating action**	**Probability of general hostility**
	(1)	**(2)**
Initial would-be acquirer with interlocking/siding incumbent director	-0.3118***	
	(0.0983)	
Target outside blockholdings	-0.0113***	
	(0.0024)	
Post-Cadbury	0.5535***	-0.2994***
	(0.0643)	(0.0407)
Bid rumors		0.2365***
		(0.0459)
Mandatory initial offer		0.1379*
		(0.0772)
Constant	0.4224**	0.4249***
	(0.1651)	(0.0250)
Controls for four target industries	Yes	Yes
Controls for bid announcement years	No	No
Chi^2 test for model significance	683.67***	
Chi^2 test for effect of censoring other takeover bids	0.02	
Observations	674	
Censored observations	555	

Table 7
Frustrating action and expected target stockholder wealth effects of hostile takeover bids

This table presents coefficients from linear regressions for the expected target stockholder wealth effects of hostile takeover bids. The expected target stockholder wealth effect is modelled as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. Column (4) blends the strongest of these functions. The independent variable of main interest for all models equals one for hostile takeover bids with frustrating action and zero for other hostile takeover bids. All models also include initial offer and target characteristics, and the controls for four target industries, and are, for all intents and purposes, unaffected by the inclusion or otherwise of the controls for bid announcement years. The Corporate Register is used to combine target, ICB, industries into four groups as follows: (i) oil & gas and basic materials; (ii) industrials, including technology hardware & equipment; (iii) consumer goods and healthcare; (iv) consumer services, including software & computers services. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

Initial offer and target characteristics	Expected target stockholder wealth effect			
	(1)	(2)	(3)	(4)
Frustrating action	-0.0316	-0.0303	-0.0352	-0.0299
	(0.0289)	(0.0315)	(0.0303)	(0.0304)
Initial offer premium	0.5397***	0.5429***	0.5436***	0.5424***
	(0.0560)	(0.0588)	(0.0574)	(0.0562)
Initial cash-only offer	0.1036***	0.1168***	0.1057***	0.1170***
	(0.0390)	(0.0399)	(0.0386)	(0.0399)
Newly-listed target	0.0265	0.0340	0.0233	0.0345
	(0.0445)	(0.0430)	(0.0434)	(0.0432)
Target stock volatility	1.5585	2.2132	1.9625	2.2056
	(1.7809)	(1.7678)	(1.7141)	(1.7562)
Target financial slack	0.0145	0.0487	0.0296	0.0438
	(0.0935)	(0.1055)	(0.0918)	(0.0922)
ln(Target size)	0.0334***	0.0291**	0.0271**	0.0288**
	(0.0118)	(0.0126)	(0.0128)	(0.0124)
Target leverage	-0.0610	-0.0813	-0.0652	-0.0799
	(0.0936)	(0.0985)	(0.0932)	(0.0935)
Target asset-turnover ratio	0.0145	0.0158	0.0116	0.0158
	(0.0205)	(0.0216)	(0.0215)	(0.0214)
Target stock performance	0.0459	0.0666	0.0595	0.0665
	(0.0450)	(0.0474)	(0.0471)	(0.0466)
Target market-to-book ratio	0.0125	0.0054	0.0126	0.0060
	(0.0304)	(0.0290)	(0.0294)	(0.0277)
Incumbent CEO age	0.0008	-0.0679**		-0.0677**
	(0.0026)	(0.0306)		(0.0301)
Incumbent CEO age^2		0.0007**		0.0007**
		(0.0003)		(0.0003)
ln(Incumbent CEO age)			0.0136	
			(0.1308)	
Incumbent CEO stockholding	0.0021	0.0031		0.0020
	(0.0021)	(0.0111)		(0.0022)
Incumbent CEO stockholding^2		-0.0000		
		(0.0004)		
ln(1 + Incumbent CEO stockholding)			0.0091	
			(0.0158)	
Other incumbent directors stockholding	0.0005	-0.0084		-0.0082
	(0.0016)	(0.0094)		(0.0085)
Other incumbent directors stockholding^2		0.0001		0.0001
		(0.0001)		(0.0001)

Table 7 continued
Frustrating action and expected target stockholder wealth effects of hostile takeover bids

Initial offer and target characteristics	**Expected target stockholder wealth effect**			
	(1)	**(2)**	**(3)**	**(4)**
ln(1 + Other incumbent directors stockholding)			-0.0203	
			(0.0236)	
Independent incumbent chairperson	-0.0169	-0.0196	-0.0202	-0.0196
	(0.0286)	(0.0277)	(0.0283)	(0.0274)
Incumbent board size	0.0008	0.0004	0.0010	0.0006
	(0.0072)	(0.0074)	(0.0071)	(0.0071)
Initial would-be acquirer with interlocking/siding incumbent director	-0.0950	-0.0981	-0.0919	-0.0979
	(0.0595)	(0.0618)	(0.0564)	(0.0618)
Target outside blockholdings	-0.0003	-0.0004	-0.0005	-0.0004
	(0.0011)	(0.0011)	(0.0011)	(0.0011)
Constant	-0.6604**	1.1931	-0.5305	1.1889
	(0.2901)	(0.8428)	(0.6118)	(0.8309)
Controls for four target industries	Yes	Yes	Yes	Yes
Controls for bid announcement years	Yes	Yes	Yes	No
F test for model significance	13.60***	51.02***	13.34***	46.41***
R^2 statistic for model fit	79.46	80.59	79.56	80.58
Observations	118	118	118	118

Table 8
Frustrating action and actual target stockholder wealth effects of hostile takeover bids
This table presents coefficients from linear regressions for the actual target stockholder wealth effects of hostile takeover bids. The actual target stockholder wealth effect is modelled as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. Column (4) blends the strongest of these functions. The independent variable of main interest for all models equals one for hostile takeover bids with frustrating action and zero for other hostile takeover bids. All models also include initial offer and target characteristics, and the controls for four target industries, and are, for all intents and purposes, unaffected by the inclusion or otherwise of the controls for bid announcement years. The Corporate Register is used to combine target, ICB, industries into four groups as follows: (i) oil & gas and basic materials; (ii) industrials, including technology hardware & equipment; (iii) consumer goods and healthcare; (iv) consumer services, including software & computers services. Also, the variables for multiple would-be acquirers and failed takeover bids are added to all models. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

	Actual target stockholder wealth effect			
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**
Frustrating action	-0.1972**	-0.1881**	-0.2032**	-0.1913**
	(0.0824)	(0.0768)	(0.0826)	(0.0768)
Multiple would-be acquirer	0.1099	0.0739	0.1035	0.0727
	(0.0980)	(0.0956)	(0.0984)	(0.0932)
Failed takeover bid	-0.0436	-0.0414	-0.0584	-0.0520
	(0.0961)	(0.0930)	(0.0945)	(0.0877)
Initial offer premium	0.6192***	0.6189***	0.6286***	0.6218***
	(0.0951)	(0.0977)	(0.1003)	(0.0977)
Initial cash-only offer	0.3705***	0.4183***	0.3735***	0.4109***
	(0.0889)	(0.0876)	(0.0866)	(0.0859)
Newly-listed target	-0.1172	-0.0799	-0.1318	-0.0939
	(0.1029)	(0.1091)	(0.1003)	(0.1079)
Target stock volatility	6.3566	8.0835*	7.6095	8.2989*
	(4.5686)	(4.5726)	(4.6714)	(4.6114)
Target financial slack	-0.0942	-0.0920	-0.0141	-0.0027
	(0.2498)	(0.2765)	(0.2512)	(0.2487)
ln(Target size)	0.0983***	0.0797**	0.0828***	0.0841***
	(0.0288)	(0.0308)	(0.0288)	(0.0300)
Target leverage	-0.3478	-0.3696	-0.3788*	-0.4099*
	(0.2280)	(0.2278)	(0.2222)	(0.2412)
Target asset-turnover ratio	0.1075*	0.1141*	0.0988*	0.1123*
	(0.0573)	(0.0583)	(0.0568)	(0.0589)
Target stock performance	0.1632	0.2117*	0.2087*	0.2162*
	(0.1181)	(0.1256)	(0.1213)	(0.1262)
Target market-to-book ratio	-0.0867	-0.0898	-0.0820	-0.0927
	(0.0708)	(0.0705)	(0.0729)	(0.0711)
Incumbent CEO age	-0.0033	-0.2188**		-0.2217**
	(0.0068)	(0.0874)		(0.0862)
Incumbent CEO age^2		0.0021**		0.0021**
		(0.0008)		(0.0008)
ln(Incumbent CEO age)			-0.2860	
			(0.3540)	
Incumbent CEO stockholding	0.0127**	-0.0097		0.0141**
	(0.0061)	(0.0341)		(0.0055)
Incumbent CEO stockholding^2		0.0010		
		(0.0013)		
ln(1 + Incumbent CEO stockholding)			0.0797	
			(0.0535)	
Other incumbent directors stockholding	-0.0004	-0.0215		-0.0236
	(0.0039)	(0.0160)		(0.0163)

Table 8 continued
Frustrating action and actual target stockholder wealth effects of hostile takeover bids

	Actual target stockholder wealth effect			
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**
Other incumbent directors stockholding^2		0.0003		0.0004
		(0.0003)		(0.0003)
ln(1 + Other incumbent directors stockholding)			-0.0671	
			(0.0507)	
Independent incumbent chairperson	0.0125	-0.0011	0.0083	0.0029
	(0.0791)	(0.0791)	(0.0790)	(0.0798)
Incumbent board size	0.0016	0.0032	0.0007	0.0003
	(0.0176)	(0.0165)	(0.0170)	(0.0164)
Initial would-be acquirer with interlocking/siding incumbent director	-0.1057	-0.1103	-0.1060	-0.1133
	(0.0999)	(0.1085)	(0.1008)	(0.1089)
Target outside blockholdings	-0.0006	-0.0010	-0.0013	-0.0010
	(0.0021)	(0.0021)	(0.0021)	(0.0021)
Constant	-1.8887***	3.9357*	-0.5394	4.0025*
	(0.6932)	(2.2978)	(1.4671)	(2.2699)
Controls for four target industries	Yes	Yes	Yes	Yes
Controls for bid announcement years	Yes	Yes	Yes	No
F test for model significance	6.00***	25.68***	5.54***	25.11***
R^2 statistic for model fit	62.43	65.94	62.75	65.63
Observations	119	119	119	119

Table 9
Frustrating action and target stockholder wealth effects of hostile takeover bids: Effect of censoring other takeover bids

This table presents coefficients from linear regressions, with sample selection, for the target stockholder wealth effects of hostile takeover bids. Shown in Columns (1) and (3), these linear regressions for the expected and actual target stockholder wealth effects, respectively, are equivalent to the linear regressions for the expected and actual target stockholder wealth effects in Column (4) of Tables 7 and 8, respectively. Average marginal effects from sample selection regressions for the probability of general hostility in takeover bids are shown in Columns (2) and (4). These sample selection regressions are equivalent to the sample selection regression in Column (2) of Table 6. The variables that are exclusive to the sample selection regressions now also include the post-Cadbury variable. This proxy for a wholesale lessening of incumbent CEO control is an important, negative, predictor of general hostility in takeover bids. However, there is no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also relevant when it comes to differences in the target stockholder wealth effects of hostile takeover bids. Heckman maximum likelihood is used to estimate the linear regressions with sample selection. For all intents and purposes, however, the linear regressions with sample selection are unaffected if Heckman two-step consistent estimates are alternatively used. Tests for the effect of censoring other takeover bids are shown at the bottom of the table. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

	Expected target stockholder wealth effect	Probability of general hostility	Actual target stockholder wealth effect	Probability of general hostility
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**
Frustrating action	-0.0295		-0.1925***	
	(0.0246)		(0.0637)	
Multiple would-be acquirer			0.0676	
			(0.0757)	
Failed takeover bid			-0.0545	
			(0.0713)	
Initial offer premium	0.5274***	-0.1201**	0.6051***	-0.1333**
	(0.0460)	(0.0608)	(0.0823)	(0.0614)
Initial cash-only offer	0.1339***	0.1409***	0.4307***	0.1496***
	(0.0297)	(0.0400)	(0.0752)	(0.0404)
Newly-listed target	0.0230	-0.1220**	-0.1091	-0.1289**
	(0.0380)	(0.0539)	(0.0903)	(0.0536)
Target stock volatility	1.9508	-5.5367***	7.9546**	-5.5169***
	(1.4479)	(2.1006)	(3.7780)	(2.0688)
Target financial slack	0.0410	0.0895	-0.0018	0.1150
	(0.0805)	(0.1536)	(0.2033)	(0.1498)
ln(Target size)	0.0373***	0.0858***	0.0947***	0.0825***
	(0.0100)	(0.0147)	(0.0301)	(0.0147)
Target leverage	-0.1214	-0.3702***	-0.4626**	-0.3757***
	(0.0834)	(0.1124)	(0.2218)	(0.1151)
Target asset-turnover ratio	0.0176	0.0402	0.1155**	0.0384
	(0.0181)	(0.0277)	(0.0487)	(0.0280)
Target stock performance	0.0481	-0.2141***	0.1927*	-0.2068***
	(0.0413)	(0.0472)	(0.1082)	(0.0471)
Target market-to-book ratio	-0.0003	-0.1164**	-0.1003*	-0.1041**
	(0.0232)	(0.0465)	(0.0606)	(0.0428)
Incumbent CEO age	-0.0699***		-0.2245***	
	(0.0242)		(0.0700)	
Incumbent CEO age^2	0.0007***		0.0021***	
	(0.0002)		(0.0007)	
Incumbent CEO stockholding	0.0023		0.0143***	
	(0.0017)		(0.0045)	
Other incumbent directors stockholding	-0.0081		-0.0236*	
	(0.0070)		(0.0135)	

Table 9 continued
Frustrating action and target stockholder wealth effects of hostile takeover bids: Effect of censoring other takeover bids

	Expected target stockholder wealth effect	Probability of general hostility	Actual target stockholder wealth effect	Probability of general hostility
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**
Other incumbent directors stockholding[2]	0.0001		0.0004*	
	(0.0001)		(0.0002)	
Independent incumbent chairperson	-0.0208		-0.0001	
	(0.0224)		(0.0651)	
Incumbent board size	0.0004		-0.0002	
	(0.0058)		(0.0135)	
Initial would-be acquirer with interlocking/siding incumbent director	-0.0925*		-0.1084	
	(0.0504)		(0.0894)	
Target outside blockholdings	-0.0005		-0.0011	
	(0.0009)		(0.0017)	
Post-Cadbury		-0.2872***		-0.2982***
		(0.0406)		(0.0409)
Bid rumors		0.2405***		0.2399***
		(0.0454)		(0.0466)
Mandatory initial offer		0.1601**		0.1363*
		(0.0762)		(0.0752)
Constant	1.0781	0.4234***	3.8687**	0.4241***
	(0.6777)	(0.0251)	(1.8719)	(0.0251)
Controls for four target industries	Yes	Yes	Yes	Yes
Controls for bid announcement years	No	No	No	No
Chi^2 test for model significance	1816.00***		1310.02***	
Chi^2 test for effect of censoring other takeover bids	2.53		0.64	
Observations	673		674	
Censored observations	555		555	

Table 10

Frustrating action and target stockholder wealth effects of hostile takeover bids: Effect of treating the type of bid resistance as being exogenous

This table presents coefficients from linear regressions, with instrumental variables, for the target stockholder wealth effects of hostile takeover bids. Shown in Columns (1) and (3), except for instrumenting the type of resistance with the probability of frustrating action in hostile takeover bids, these linear regressions for the expected and actual target stockholder wealth effects, respectively, are equivalent to the linear regressions for the expected and actual target stockholder wealth effects in Column (4) of Tables 7 and 8, respectively. Average marginal effects from probit regressions for the probability of frustrating action in hostile takeover bids are shown in Columns (2) and (4). These probit regressions are equivalent to the probit regression in Column (4) of Table 4, except that now the corresponding linear regressions determine the inclusion of the variables for multiple would-be acquirers and failed takeover bids, and the functional forms of the relationships between the probability of frustrating action and incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding. The post-Cadbury variable is exclusive to the probit regressions. This proxy for a wholesale lessening of incumbent CEO control is an important, positive, predictor of frustrating action in hostile takeover bids. However, there is no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also directly relevant when it comes to differences in the target stockholder wealth effects of hostile takeover bids. Two-stage least squares is used to estimate the linear regressions with instrumental variables. For all intents and purposes, however, the linear regressions with instrumental variables are unaffected if limited information maximum likelihood and generalized method of moments are alternatively used. Tests for the effect of treating the type of bid resistance as being exogenous, and for the strength of instrumenting the type of bid resistance with the probability of frustrating action, are shown at the bottom of the table. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

	Expected target stockholder wealth effect	**Probability of frustrating action**	**Actual target stockholder wealth effect**	**Probability of frustrating action**
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**
Frustrating action (instrumented)	-0.0025		-0.3654***	
	(0.0536)		(0.1105)	
Multiple would-be acquirer			0.0318	-0.3370***
			(0.0785)	(0.0412)
Failed takeover bid			-0.0493	-0.0553
			(0.0731)	(0.0687)
Initial offer premium	0.5360***	0.4471***	0.6616***	0.5667***
	(0.0498)	(0.0973)	(0.0882)	(0.1297)
Initial cash-only offer	0.1200***	-0.1629**	0.3969***	-0.2093***
	(0.0330)	(0.0668)	(0.0702)	(0.0609)
Newly-listed target	0.0460	-0.4485***	-0.1668*	-0.4403***
	(0.0381)	(0.0282)	(0.0962)	(0.0245)
Target stock volatility	2.3698	-7.5263*	7.3265*	-8.5628*
	(1.5129)	(4.0243)	(4.1632)	(4.3973)
Target financial slack	0.0406	-0.6937**	0.0148	-0.9117***
	(0.0746)	(0.3244)	(0.2024)	(0.3342)
ln(Target size)	0.0286***	-0.0017	0.0850***	0.0150
	(0.0103)	(0.0317)	(0.0274)	(0.0295)
Target leverage	-0.0845	0.2447	-0.3817**	0.3758*
	(0.0774)	(0.2416)	(0.1888)	(0.1964)
Target asset-turnover ratio	0.0191	-0.2220***	0.0920*	-0.2409***
	(0.0200)	(0.0475)	(0.0481)	(0.0613)
Target stock performance	0.0677*	0.0264	0.1991*	-0.0513
	(0.0388)	(0.0956)	(0.1050)	(0.0914)
Target market-to-book ratio	0.0102	0.0112	-0.1065*	0.0459
	(0.0250)	(0.1022)	(0.0599)	(0.0888)
Incumbent CEO age	-0.0719***	0.2119***	-0.1993***	0.2018***
	(0.0254)	(0.0748)	(0.0735)	(0.0587)
Incumbent CEO age^2	0.0007***	-0.0020***	0.0019***	-0.0018***
	(0.0002)	(0.0007)	(0.0007)	(0.0006)
Incumbent CEO stockholding	0.0015	0.0395***	0.0179***	0.0460***
	(0.0021)	(0.0081)	(0.0045)	(0.0095)

Table 10 continued

Frustrating action and target stockholder wealth effects of hostile takeover bids: Effect of treating the type of bid resistance as being exogenous

Bid and target characteristics	Expected target stockholder wealth effect (1)	Probability of frustrating action (2)	Actual target stockholder wealth effect (3)	Probability of frustrating action (4)
Other incumbent directors stockholding	-0.0069	-0.0658	-0.0307**	-0.0884***
	(0.0081)	(0.0413)	(0.0152)	(0.0323)
Other incumbent directors stockholding^2	0.0001	-0.0007	0.0005**	0.0009
	(0.0001)	(0.0039)	(0.0002)	(0.0033)
Independent incumbent chairperson	-0.0152	-0.1642**	-0.0262	-0.2601***
	(0.0236)	(0.0729)	(0.0683)	(0.0530)
Incumbent board size	0.0011	-0.0502**	-0.0040	-0.0873***
	(0.0059)	(0.0219)	(0.0150)	(0.0286)
Initial would-be acquirer with interlocking/siding incumbent director	-0.0906*	-0.3213***	-0.1600*	-0.3308***
	(0.0536)	(0.0718)	(0.0901)	(0.0569)
Target outside blockholdings	-0.0003	-0.0112***	-0.0016	-0.0126***
	(0.0010)	(0.0024)	(0.0019)	(0.0026)
Post-Cadbury		0.5539***		0.5278***
		(0.0343)		(0.0343)
Constant	1.2831*	0.4430***	3.5193*	0.4415***
	(0.6800)	(0.0263)	(1.9450)	(0.0236)
Controls for four target industries	Yes	Yes	Yes	Yes
Controls for bid announcement years	No	No	No	No
Chi^2 test for model significance	2195.98***	598.69***	1275.45***	585.89***
R^2 statistic for model fit	80.43		63.78	
Pseudo R^2 statistic for model fit		54.37		62.41
Chi^2 test for effect of treating the type of bid resistance as being exogenous	0.46		4.82**	
F test for instrument strength	46.74***		76.41***	
Observations	118	119	119	119

Table 11
Frustrating action and incumbent CEO turnover after hostile takeover bids
This table presents average marginal effects from probit regressions for the probability of incumbent CEO turnover after hostile takeover bids. The probability of incumbent CEO turnover is modelled as a linear, curvilinear, and natural logarithmic function of incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding in Columns (1) to (3), respectively. Columns (4) and (5) blend the strongest of these functions. The independent variable of main interest for all models equals one for hostile takeover bids with frustrating action and zero for other hostile takeover bids. All models also include bid and target characteristics, and the controls for four target industries, and are, for all intents and purposes, unaffected by the inclusion or otherwise of the controls for bid announcement years. The Corporate Register is used to combine target, ICB, industries into four groups as follows: (i) oil & gas and basic materials; (ii) industrials, including technology hardware & equipment; (iii) consumer goods and healthcare; (iv) consumer services, including software & computers services. Also, an interaction term between the variable of main interest and the variable for failed takeover bids is added in Column (5). Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

	Probability of incumbent CEO turnover				
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Frustrating action	0.2721***	0.2837***	0.2870***	0.2731***	0.1967**
	(0.0799)	(0.0738)	(0.0760)	(0.0788)	(0.0863)
Frustrating action × Failed takeover bid					0.3813***
					(0.0808)
Multiple would-be acquirer	-0.0903	-0.0985	-0.0801	-0.0766	-0.1014
	(0.0991)	(0.0987)	(0.0954)	(0.0969)	(0.0895)
Failed takeover bid	-0.4254***	-0.4155***	-0.4108***	-0.4118***	-0.5207***
	(0.0677)	(0.0684)	(0.0684)	(0.0691)	(0.0446)
Initial offer premium	0.0527	0.0180	0.0175	0.0277	0.0155
	(0.1042)	(0.1062)	(0.1110)	(0.1093)	(0.1087)
Initial cash-only offer	-0.2028**	-0.1683*	-0.1817**	-0.1811**	-0.1781**
	(0.0855)	(0.0910)	(0.0877)	(0.0871)	(0.0843)
Newly-listed target	-0.1416	-0.1114	-0.1140	-0.1237	-0.0882
	(0.0921)	(0.0884)	(0.0875)	(0.0874)	(0.0870)
Target stock volatility	-3.0137	-2.5957	-2.9865	-3.0151	-1.5181
	(4.4643)	(4.5914)	(4.4707)	(4.4759)	(4.3690)
Target financial slack	0.1471	0.1623	0.2094	0.0137	-0.0938
	(0.3960)	(0.4257)	(0.3811)	(0.4060)	(0.3932)
ln(Target size)	-0.1247***	-0.1366***	-0.1420***	-0.1319***	-0.1316***
	(0.0370)	(0.0345)	(0.0362)	(0.0357)	(0.0367)
Target leverage	0.5708**	0.5723**	0.6046**	0.6172***	0.5180**
	(0.2407)	(0.2335)	(0.2359)	(0.2384)	(0.2531)
Target asset-turnover ratio	-0.1024*	-0.1010**	-0.1067**	-0.1058**	-0.1013*
	(0.0526)	(0.0511)	(0.0531)	(0.0521)	(0.0542)
Target stock performance	-0.2373	-0.2132	-0.1780	-0.2162	-0.1558
	(0.1569)	(0.1525)	(0.1508)	(0.1523)	(0.1357)
Target market-to-book ratio	0.1329	0.1192	0.1226	0.1269	0.1662**
	(0.0822)	(0.0776)	(0.0789)	(0.0797)	(0.0779)
Incumbent CEO age	-0.0096	-0.1298			
	(0.0066)	(0.0978)			
Incumbent CEO age^2		0.0012			
		(0.0009)			
ln(Incumbent CEO age)			-0.4668	-0.4677	-0.4545
			(0.3253)	(0.3298)	(0.3112)
Incumbent CEO stockholding	-0.0065	-0.0440		-0.0456	-0.0661**
	(0.0098)	(0.0284)		(0.0302)	(0.0287)
Incumbent CEO stockholding^2		0.0014		0.0015	0.0022*
		(0.0012)		(0.0012)	(0.0012)
ln(1 + Incumbent CEO stockholding)			-0.1121*		
			(0.0637)		

Table 11 continued
Frustrating action and incumbent CEO turnover after hostile takeover bids

	Probability of incumbent CEO turnover				
Bid and target characteristics	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Other incumbent directors stockholding	-0.0026	-0.0038			
	(0.0059)	(0.0200)			
Other incumbent directors stockholding^2		0.0000			
		(0.0003)			
ln(1 + Other incumbent directors stockholding)			0.0095	-0.0009	0.0078
			(0.0675)	(0.0633)	(0.0644)
Independent incumbent chairperson	0.1130	0.1028	0.1045	0.1084	0.1109
	(0.0791)	(0.0779)	(0.0789)	(0.0775)	(0.0764)
Incumbent board size	0.0606***	0.0630***	0.0653***	0.0652***	0.0721***
	(0.0197)	(0.0191)	(0.0200)	(0.0193)	(0.0197)
Initial would-be acquirer with interlocking/siding incumbent director	0.0202	0.0213	0.0106	0.0049	-0.0155
	(0.1333)	(0.1315)	(0.1331)	(0.1346)	(0.1446)
Target outside blockholdings	-0.0046*	-0.0049**	-0.0046**	-0.0045**	-0.0041*
	(0.0024)	(0.0024)	(0.0023)	(0.0023)	(0.0023)
Constant	0.4559***	0.4550***	0.4548***	0.4551***	0.4533***
	(0.0322)	(0.0315)	(0.0317)	(0.0319)	(0.0308)
Controls for four target industries	Yes	Yes	Yes	Yes	Yes
Controls for bid announcement years	Yes	Yes	Yes	No	No
Chi^2 test for model significance	56.90**	86.12***	56.42**	58.25**	54.81**
Pseudo R^2 statistic for model fit	37.24	38.90	38.57	38.19	41.59
Observations	119	119	119	119	119

Table 12

Frustrating action and incumbent CEO turnover after hostile takeover bids: Effect of censoring other takeover bids

This table presents average marginal effects from a probit regression, with sample selection, for the probability of incumbent CEO turnover after hostile takeover bids. Shown in Column (1), this probit regression is equivalent to the probit regression in Column (4) of Table 11. Average marginal effects from a sample selection regression for the probability of general hostility in takeover bids are shown in Column (2). This sample selection regression is equivalent to the sample selection regression in Column (2) of Table 6. The variables that are exclusive to the sample selection regression now also include the post-Cadbury variable. This proxy for a wholesale lessening of incumbent CEO control is an important, negative, predictor of general hostility in takeover bids. However, there is no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also relevant when it comes to differences in the probability of incumbent CEO turnover after hostile takeover bids. A test for the effect of censoring other takeover bids is shown at the bottom of the table. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

	Probability of incumbent CEO turnover	Probability of general hostility
Bid and target characteristics	**(1)**	**(2)**
Frustrating action	0.2728***	
	(0.0826)	
Multiple would-be acquirer	-0.0638	
	(0.0970)	
Failed takeover bid	-0.4175***	
	(0.0866)	
Initial offer premium	0.0614	-0.1308**
	(0.1243)	(0.0615)
Initial cash-only offer	-0.2115***	0.1537***
	(0.0760)	(0.0397)
Newly-listed target	-0.0792	-0.1302**
	(0.1398)	(0.0541)
Target stock volatility	-2.5673	-5.4810***
	(4.3135)	(2.0661)
Target financial slack	-0.0244	0.1111
	(0.3814)	(0.1494)
ln(Target size)	-0.1501***	0.0829***
	(0.0341)	(0.0144)
Target leverage	0.6864***	-0.3817***
	(0.2373)	(0.1128)
Target asset-turnover ratio	-0.1029*	0.0391
	(0.0527)	(0.0277)
Target stock performance	-0.1851	-0.2062***
	(0.1635)	(0.0470)
Target market-to-book ratio	0.1429*	-0.1041**
	(0.0735)	(0.0432)
ln(Incumbent CEO age)	-0.4303	
	(0.3182)	
Incumbent CEO stockholding	-0.0472*	
	(0.0284)	
Incumbent CEO stockholding^2	0.0016	
	(0.0012)	
ln(1 + Other incumbent directors stockholding)	0.0039	
	(0.0607)	
Independent incumbent chairperson	0.1160	
	(0.0734)	
Incumbent board size	0.0650***	
	(0.0207)	

Table 12 continued

Frustrating action and incumbent CEO turnover after hostile takeover bids: Effect of censoring other takeover bids

Bid and target characteristics	**Probability of incumbent CEO turnover (1)**		**Probability of general hostility (2)**
Initial would-be acquirer with interlocking/siding incumbent director	-0.0097		
	(0.1302)		
Target outside blockholdings	-0.0041		
	(0.0029)		
Post-Cadbury			-0.3042***
			(0.0425)
Bid rumors			0.2345***
			(0.0471)
Mandatory initial offer			0.1408*
			(0.0736)
Constant	0.5695***		0.4260***
	(0.2011)		(0.0251)
Controls for four target industries	Yes		Yes
Controls for bid announcement years	No		No
Chi^2 test for model significance		60.26***	
Chi^2 test for effect of censoring other takeover bids		0.30	
Observations		674	
Censored observations		555	

Table 13

Frustrating action and incumbent CEO turnover after hostile takeover bids: Effect of treating the type of bid resistance as being exogenous

This table presents average marginal effects from a probit regression, with an instrumental variable, for the probability of incumbent CEO turnover after hostile takeover bids. Shown in Column (1), except for instrumenting the type of resistance with the probability of frustrating action in hostile takeover bids, this probit regression is equivalent to the probit regression in Column (4) of Table 11. Average marginal effects from a probit regression for the probability of frustrating action in hostile takeover bids are shown in Column (2). This probit regression is equivalent to the probit regression in Column (4) of Table 4, except that now the probit regression for incumbent CEO turnover determines the inclusion of the variables for multiple would-be acquirers and failed takeover bids, and the functional forms of the relationships between the probability of frustrating action and incumbent CEO age, incumbent CEO stockholding, and other incumbent directors stockholding. The post-Cadbury variable is exclusive to the probit regression for frustrating action. This proxy for a wholesale lessening of incumbent CEO control is an important, positive, predictor of frustrating action in hostile takeover bids. However, there is no a-priori reason to suspect that a wholesale lessening of incumbent CEO control is also directly relevant when it comes to differences in the probability of incumbent CEO turnover after hostile takeover bids. Maximum likelihood is used to estimate the probit regression with an instrumental variable. For all intents and purposes, however, the probit regression with an instrumental variable is unaffected if Newey two-step consistent estimates are alternatively used. A test for the effect of treating the type of bid resistance as being exogenous is shown at the bottom of the table. Robust standard errors are shown in parentheses. ***, **, and * indicate significance at the one, five, and ten percent level, respectively.

Bid and target characteristics	Probability of incumbent CEO turnover (1)	Probability of frustrating action (2)
Frustrating action (instrumented)	0.3885***	
	(0.1323)	
Multiple would-be acquirer	-0.0587	-0.3443***
	(0.0968)	(0.0539)
Failed takeover bid	-0.3996***	-0.0800
	(0.0725)	(0.0768)
Initial offer premium	0.0103	0.4539***
	(0.1100)	(0.1137)
Initial cash-only offer	-0.1616*	-0.2004***
	(0.0905)	(0.0658)
Newly-listed target	-0.0769	-0.4364***
	(0.1038)	(0.0276)
Target stock volatility	-2.1451	-7.4027*
	(4.4153)	(3.9973)
Target financial slack	0.0030	-0.4971*
	(0.3997)	(0.2920)
ln(Target size)	-0.1284***	0.0150
	(0.0359)	(0.0316)
Target leverage	0.5809**	0.2928
	(0.2357)	(0.2253)
Target asset-turnover ratio	-0.0914*	-0.1748***
	(0.0552)	(0.0464)
Target stock performance	-0.2045	-0.1070
	(0.1517)	(0.1112)
Target market-to-book ratio	0.1397*	0.0410
	(0.0791)	(0.1039)
ln(Incumbent CEO age)	-0.5187	0.5417*
	(0.3203)	(0.2786)
Incumbent CEO stockholding	-0.0465	0.0541*
	(0.0288)	(0.0305)
Incumbent CEO stockholding^2	0.0014	-0.0008
	(0.0012)	(0.0011)
ln(1 + Other incumbent directors stockholding)	0.0091	-0.2426***
	(0.0644)	(0.0747)

Table 13 continued
Frustrating action and incumbent CEO turnover after hostile takeover bids: Effect of treating the type of bid resistance as being exogenous

	Probability of incumbent CEO turnover	Probability of frustrating action
Bid and target characteristics	**(1)**	**(2)**
Independent incumbent chairperson	0.1217	-0.2404***
	(0.0750)	(0.0636)
Incumbent board size	0.0633***	-0.0803***
	(0.0190)	(0.0282)
Initial would-be acquirer with interlocking/siding incumbent director	0.0429	-0.3022***
	(0.1358)	(0.0772)
Target outside blockholdings	-0.0041*	-0.0093***
	(0.0023)	(0.0022)
Post-Cadbury		0.5636***
		(0.0443)
Constant	0.4573***	0.4387***
	(0.0315)	(0.0262)
Controls for four target industries	Yes	Yes
Controls for bid announcement years	No	No
Chi^2 test for model significance	66.63***	552.28***
Pseudo R^2 statistic for model fit		57.55
Chi^2 test for effect of treating the type of bid resistance as being exogenous	0.79	
Observations	119	119