

Online Appendix for “Less Popular but More Effective Toeholds in Corporate Takeovers”

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This appendix provides supplementary tables describing the data and providing some robustness tests. Table A.1 presents the definitions of the variables used in the analysis. Tables A.2 and A.3 present nonlinear regressions corresponding to linear regressions in Tables 5 and 6 in the main text. Table A.4 compares takeover performance, target, acquirer, and deal characteristics as well as the frequency of serial acquisitions between the serial toehold acquirers and serial non-toehold acquirers.

Table A.1 Variable definitions

Variable	Definition	Source
ACQUIRER_CAR[-41, END]	The cumulative abnormal returns for the acquirer firm during the announcement window [-41, end], where the end date is the earlier of the target delisting date and the day of the last bid in the contest plus 126 trading days (the same as defined in Betton <i>et al.</i> , 2008a).	CRSP; SDC; own calculation
ACQUIRER_CAR[-41,1]	The cumulative abnormal returns for the acquirer firm during the announcement window [-41,1].	CRSP; SDC; own calculation
ACQUIRER_EQUITY_INVESTMENT	The total equity investment of acquirer firm (excluding its minority stake investment in the target) divided by the total assets of the acquirer firm as reported in the last annual financial report before the takeover announcement.	Compustat; SEC filings
ACQUIRER_MVE	The market value of the acquirer's equity on day -42, recorded in millions and adjusted to the 2014 price level.	CRSP; SDC
ACQUIRER_NYSE AMEX	An indicator which takes the value of 1 if the acquirer is listed on the NYSE or AMEX exchange, and 0 otherwise.	CRSP
ACQUIRER_PENNY_STOCK	Penny stock is a dummy variable that takes the value of 1 if the acquirer's stock price on day -42 is less than \$1, and 0 otherwise.	CRSP; SDC
ACQUIRER_SIZE	The natural logarithm of Acquirer MVE.	CRSP; SDC
ACQUIRER_TURNOVER	The average daily trading volume of the acquirer stock as a fraction of total shares outstanding over the time window [-293, -42].	CRSP; SDC; own calculation
ALL_CASH	An indicator which takes the value of 1 if the takeover offer is paid by 100% cash, and 0 otherwise.	SDC
DEAL_COMPLETE	An indicator which takes the value of 1 if the takeover is completed, and 0 otherwise.	SDC
HORIZONTAL	An indicator which takes the value of 1 if the target and acquirer are in the same 2-digit SICs, and 0 otherwise.	SDC
HOSTILE	An indicator which takes the value of 1 if the takeover is hostile, and 0 otherwise.	SDC
LAGGED(TOEHOLD-THRESHOLD)	The difference between toehold size and the calculated toehold threshold in the last toehold strategy done by the same acquirer. This variable is only for the expanded toehold sample for Table 11.	SDC; own calculation
NONTOEHOLD_STRATEGY	A corporate takeover deal of which the acquirer does not own a minority stake before the takeover announcement.	SDC
NUMBER_OF_ACQUIRERS	The number of acquirers bidding for the same target.	SDC
PAST_TOEHOLD_OWNER	An indicator which takes the value of 1 if the acquirer is a serial acquirer and the last bid was with a toehold, and 0 otherwise.	SDC
POISON_PILL	An indicator which takes the value of 1 if the takeover uses a poison pill, and 0 otherwise.	SDC
PUBLIC_ACQUIRER	An indicator which takes value of 1 if the acquirer is a public firm, and 0 otherwise. This variable is only for the expanded toehold sample for Table 11.	SDC
SERIAL_ACQUIRER	An indicator which takes the value of 1 if the acquirer has bid for another public U.S. target in the five years before the current deal, and 0 otherwise.	SDC
TARGET_MVE	The market value of the target's equity on day -42, recorded in millions and adjusted to the 2014 price level.	CRSP; SDC

TARGET_NYSE AMEX	An indicator which takes the value of 1 if the target is listed on the NYSE or AMEX exchange, and 0 otherwise.	CRSP
TARGET_PENNY_STOCK	Penny stock is a dummy variable that takes the value of 1 if the target stock price on day -42 is less than \$1, and 0 otherwise.	CRSP; SDC
TARGET_RUNUP	The CAR to the target over the runup period [-41, -2] using a value-weighted market return model estimated over [-293, end].	CRSP; SDC; own calculation
TARGET_SIZE	The natural logarithm of Target MVE.	CRSP; SDC
TARGET_TURNOVER	The average daily trading volume of the target stock as a fraction of total shares outstanding over the time window [-293, -42]	CRSP; SDC; own calculation
TBDA	The number of days between the announcement date of the current takeover deal and the announcement date of the last takeover deal done by the same acquirer.	SDC; own calculation
TBDAE	The number of days between the announcement date of the current takeover deal and the end date of the last takeover deal done by the same acquirer.	SDC; own calculation
TBDE	The number of days between the end date of the current takeover deal and the end date of the last takeover deal done by the same acquirer.	SDC; own calculation
TENDER_OFFER	An indicator which takes the value of 1 if the takeover is a tender offer, and 0 otherwise.	SDC
THRESHOLD	The toehold threshold defined in Betton et al. (2009). $\hat{\alpha} = -k_1 + \sqrt{k_1^2 + k_2}$, where $\hat{\alpha}$ refers to the toehold threshold, $k_1 = v - r - \frac{1}{2}(v^2 - t^2) - t/(1 - \theta)$, and $k_2 = r(2v - r) + t(\frac{2}{1-\theta} - t)$. v stands for the acquirer's private valuation with assumed distribution $v \sim U[0,1]$, and can be proxy by the initial offer premium. The termination fee t is the average fee for controlling bids in the same industry and year, reflecting in part the bidder's opportunity loss of a merger termination agreement. The probability θ of takeover failure is estimated from a Probit model regressed on the probability of deal completion (deal complete) with a set of explanatory variables (Target size, Target Penny stock, Target NYSE Amex, Poison pill, Horizontal, Tender offer, All cash, and year dummies). The resistance cost r is estimated by $r = -(1 - v) + \sqrt{(1 - v)^2 + 2t/(1 - \theta) - t^2}$.	CRSP; SDC; own calculation
THRESHOLD_WITH_TOEHOLD	The toehold threshold in the toehold strategy.	CRSP; SDC; own calculation
TIME	The year difference between the announcement year of the takeover and the base year of 1990.	SDC
TOEHOLD-THRESHOLD	The difference between toehold size and the calculated toehold threshold in toehold strategies.	SDC; own calculation
TOEHOLD_DUMMY	An indicator which takes the value of 1 if the takeover is a toehold strategy, and 0 otherwise.	SDC
TOEHOLD_SIZE	The percentage of shares owned by the acquirer before the takeover announcement.	SDC
TOEHOLD_STRATEGY	A corporate takeover deal of which the acquirer owns a minority stake before the takeover announcement.	SDC

Table A.2: Toehold threshold and toehold bidding (nonlinear regressions)

This table reports the coefficient estimates in the regressions on the probability of toehold bidding and toehold size. The variables are defined the same as in Table 5. For each variable, both the coefficient and standard error (in parentheses) are reported. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

<i>Dependent variable:</i>	PROBABILITY_OF_TOEHOLD_BIDDING		TOEHOLD_SIZE	
	Full sample		Full sample	
	(1)	(2)	(3)	(4)
THRESHOLD	-2.626** (1.325)	1.008 (3.977)		
THRESHOLD*TIME		-0.229 (0.248)		
THRESHOLD_WITH_TOEHOLD			5.794*** (1.028)	-0.618 (0.929)
THRESHOLD_WITH_TOEHOLD*TIME				0.494*** (0.108)
TIME		-0.018 (0.019)		-0.014*** (0.005)
Control variables	yes	yes	yes	yes
Year dummy	yes	yes	yes	yes
Industry dummy	yes	yes	yes	yes
Model	Probit	Probit	Tobit	Tobit
N	1,550	1,550	1,550	1,550

Table A.4: Comparison of serial toehold acquirers and serial non-toehold acquirers

For each variable, we report the mean and median (in parentheses). Serial toehold acquirers refer to past toehold owners in previous tables. Serial non-toehold acquirers refer to serial acquirers that are not past toehold owners. The significance of the difference in means is tested by the t-test, and the significance of difference in medians is based on Wilcoxon rank-sum test. T-statistics and z-value are reported for difference tests in means and medians, respectively. *, **, and, *** denote significance levels of 10%, 5%, and 1%, respectively.

	Serial toehold acquirers	Serial non-toehold acquirers	Difference	t-stat (z-value)
A. Performance measure				
ACQUIRER_CAR[-41, 1]	0.006 (0.023)	-0.022 (-0.016)	0.028 (0.038)	0.584 (0.662)
ACQUIRER_CAR[-41, END]	-0.036 (-0.068)	-0.187 (-0.137)	0.151 (0.068)	0.792 (1.019)
B. Target characteristics				
TARGET_MVE (\$millions, 2014)	1,667,272 (416,534)	1,556,489 (287,047)	110,783 (129,487)	0.073 (0.748)
TARGET_RUNUP	0.055 (0.087)	0.070 (0.041)	-0.015 (0.046)	-0.220 (0.010)
TARGET_PENNY_STOCK	0.000 (0.000)	0.016 (0.000)	-0.016 (0.000)	-0.415 (-0.416)
TARGET_TURNOVER	0.005 (0.004)	0.006 (0.004)	-0.001 (0.001)	-0.338 (0.271)
TARGET_NYSE AMEX	0.545 (1.000)	0.342 (0.000)	0.204 (1.000)	1.395 (-1.393)
C. Acquirer characteristics				
ACQUIRER_MVE (\$millions, 2014)	5,086,383 (1,082,621)	4,914,574 (1,510,399)	171,809 (-427,778)	0.050 (-0.143)
ACQUIRER_PENNY_STOCK	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	. .
ACQUIRER_TURNOVER	0.004 (0.004)	0.007 (0.004)	-0.002 (-0.000)	-0.935 (-0.535)
ACQUIRER_NYSE AMEX	0.727 (1.000)	0.506 (1.000)	0.221 (0.000)	1.442 (1.440)

HORIZONTAL	0.273 (0.000)	0.469 (0.000)	-0.196 (0.000)	-1.283 (-1.282)
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D. Deal characteristics				
POISON_PILL	0.000 (0.000)	0.012 (0.000)	-0.012 (0.000)	-0.371 (-0.371)
TENDER_OFFER	0.364 (0.000)	0.115 (0.000)	0.249 (0.000)	2.484** (2.465**)
ALL_CASH	0.182 (0.000)	0.165 (0.000)	0.017 (0.000)	0.151 (0.151)
HOSTILE	0.091 (0.000)	0.040 (0.000)	0.051 (0.000)	0.820 (0.820)
NUMBER_OF_ACQUIRERS	1.000 (1.000)	1.124 (1.000)	-0.124 (0.000)	-0.928 (-1.059)
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E. Serial acquisition frequency				
TBDA	476.818 (341.000)	574.393 (468.000)	-97.575 (-127.000)	-0.724 (-0.364)
TBDAE	361.455 (289.000)	445.235 (343.500)	-83.780 (-54.500)	-0.609 (-0.374)
TBDE	590.000 (661.000)	584.905 (455.500)	5.095 (205.500)	0.038 (0.376)
AVERAGE_NUMBER_OF_ACQUISITIONS	1.273 (1.000)	1.503 (1.000)	-0.230 (0.000)	-0.667 (-0.474)
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