

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 is 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 |

This table reports estimates in regressions on the probability of toehold bidding and toehold size. The variables are defined the same as in Table 6. For each variable, both the coefficient and standard error (in parentheses) are reported. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

This table reports estimates in regressions on the probability of toehold bidding and toehold size. The variables are defined the same as in Table 6. For each variable, both the coefficient and standard error (in parentheses) are reported. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

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) |
| <hr/> | | | | |
| 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) |
| <hr/> | | | | |
| 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) |
| <hr/> | | | | |