# Online Appendix to "Do Investment Banks Have Skill? Performance Persistence of M&A Advisors"

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## A1. Other Performance Measures

The core paper focuses on persistence in shareholder returns. However, a CEO wishing to maximize shareholder value may place weight on performance measures other than CAR. We therefore investigate two further performance measures: the deal completion ratio and the average speed of completion.

The deal completion ratio is motivated by Rau's (2000) finding that it is a significant determinant of market share. A bidder's concern with completion may result from managerial self-interest, but can also be fully consistent with value maximization: a CEO who has identified a value-adding deal will justifiably place weight on the probability of eventual completion.

There are three stages to a transaction: the initial award of the *mandate* by the client to the bank, the *announcement* of the deal, and eventual *completion*. An announced deal may not be completed for reasons such as antitrust rulings; these deals are classified as "withdrawn". Rau's measure of completion ability is the number of completed deals as a percentage of announced deals. One alternative metric would be completed deals as a percentage of mandates awarded, as this would take into account banks' failure to bring mandates even to the announcement stage. However, such a measure cannot be used since we only observe announcements, not mandates. More importantly, it may not capture true completion ability. For private deals (64% of our sample) and negotiated mergers, the seller has agreed on the transaction terms by the time the deal is announced and appears in SDC. A bank can bring a high proportion of mandates to announcement simply by advising its clients to overpay, thus winning bidding auctions and overcoming target management resistance. By contrast, whether an announced deal is subsequently completed depends not on the price paid, but other factors such as the bank's ability to negotiate regulatory hurdles.[1]

[1] For tender offers, the target board has not agreed on the terms upon announcement. The transaction may not be completed if the target board does not recommend the deal to shareholders or a counter-bid arises, and the bank advises the client not to make a higher offer. A high ratio of completed to announced tender offers may thus stem

When computing future performance, we calculate the completion ratio, *CR*, as the percentage of announced deals that is completed. However, for past performance, we use the percentage of *resolved* deals that is completed. A deal is resolved when it is completed or withdrawn. This methodology is to avoid look-ahead biases, since resolution occurs after announcement. For example, a client at the end of 1999 is unable to observe the proportion of deals announced in 1999 that will be eventually completed, since many deals announced in late 1999 will not be resolved until early 2000. We assume that a deal has been withdrawn if it was announced more than two years prior to the end of our sample and is not yet completed. The resolution date for such deals is then coded as two years from the announcement date. Pending deals announced within 2006 and 2007 are as yet unresolved and not used for the calculation of *CR*. 14,091 deals are labeled as complete, 1,087 as withdrawn, and 166 as pending.

We also analyze completion speed as CEOs may wish to accelerate the realization of synergies or reduce distractions from core operations. As in Hunter and Jagtiani (2003), we calculate SPEED, the number of days between announcement and completion. We winsorize SPEED at 2 years, obtaining an average time to completion of 97 days. Less than 0.5% of deals are affected by the winsorization. When calculating past (future) performance, *TIME* is the average SPEED for all deals resolved (announced) by a bank in a specified period.

Banks may exhibit low completion ratios and slow speeds because they are systematically given transactions that are difficult to complete. If these deals are also positive-NPV, the bank should not be advising against them. Therefore, difficult deal characteristics are a justifiable explanation for poor *CR* and *TIME*, even though they are under the bank's control and do not excuse negative *RET*. Therefore, we construct *CRRES* and *TIMERES* by regressing on deal, rather than acquirer, characteristics. Our chosen deal characteristics proxy for deal complexity, as this affects ease of completion. We include dummy variables for whether the transaction was hostile, was a tender offer, involved no target advisors, was executed in two tiers (all used by Hunter and Jagtiani (2003)), or was challenged (Rau (2000)). We also include the number of target SIC codes, the bidder's toehold (both Servaes and Zenner (1996)), target size relative to the acquirer (Masulis et al. (2007)), percentage of stock financing[2] (both Servaes and

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from advising clients to overpay. However, tender offers comprise only 11% of our sample. Even if they were sufficiently frequent to affect the results, the above explanation for high completion rates would imply a negative relationship between completion ratio and returns, contrary to our findings. Indeed, the relationship between completion ratio and returns is unchanged when dropping all tender offers.

[2] The percentage of stock financing is the one deal characteristic that is potentially also important for the *RET* regressions, since a firm may engage in a stock-financed acquisition to exchange overvalued equity for hard assets

Zenner (1996)), a public target dummy (Chang (1998), Officer (2007)) and a diversification dummy. We also include dummies for the Fama-French industry of the target. Table A1 lists the variables used in this extension, and Table A2 presents the results of the first-stage regression

Table A3 studies persistence in the two additional performance measures. The left-most column studies the raw completion ratio. Since substantially more than 20% of banks have a completion ratio of 1 over a particular time period, we cannot divide banks into quintiles. Instead, we create a dummy variable, *ALLCOMP*, that equals 1 if *CR* is l over the past j calendar years, and 0 otherwise. We group banks according to *ALLCOMP* and study whether they complete all of the deals they announce in the next j calendar years. (We use the same timeframe for past and future performance in Table A3 for brevity).

The left-most column of Table A3 shows significant persistence in completion ratios. A bank that completed all of its deals in the past j calendar years is over 30% more likely to do so over the next j years than one that did not. All of these results are significant at the 1% level. While our use of *ALLCOMP* is enforced by the inability to use quintiles, it may proxy for the bank's market share rather than true completion ability – banks that announce few deals are particularly likely to complete all deals. The analysis of *CRRES* addresses this issue, since *CRRES* is an unbounded variable and thus allows us to conduct the standard quintile analysis. We find no persistence in completion ability, controlling for deal characteristics. By contrast, *TIME* is persistent both in raw terms, and after controlling for deal characteristics.

Panel B of Table A3 examines the shareholder value consequences of selecting advisors on the basis of other performance measures. The left-most column illustrates that banks with perfect past completion ratios are associated with an increased *RET* by 0.2-0.5%, which is significant for j≥2. Banks with higher *CRRES* and lower *TIME* are also associated with higher future returns; the results for *TIME* are statistically significant. This result suggests that the selection criteria documented by Rau (2000) need not be inefficient. Good advisors appear to be skilled across multiple dimensions, and so clients need not face a tradeoff between objectives when selecting banks. In particular, selecting on completion speed and rate does not negatively impact future shareholder returns, and may modestly increase them.

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(Shleifer and Vishny (2003)) – i.e. the takeover is a disguised equity issuance. Even if returns are negative, the transaction may be value creating as the stock price would fall further without the transaction (when the overvaluation is corrected). We therefore conduct an additional robustness check for the results in the core paper by constructing *RETRES* controlling for the percentage of stock financing in addition to acquirer characteristics, and find very similar results.

This conclusion differs from Rau, who hypothesizes that banks can either focus on "completing the deal", or on "preventing poor deals" – those which choose the former (latter) will have high (low) completion rates but low (high) measured returns because they are (not) completing poor deals, and so there is a negative correlation between completion ratio and returns. As discussed at the start of this section, a bank intent upon executing all transactions would complete a high percentage of *mandates* awarded. However, both here and in Rau (2000), *CR* is the percentage of deals *announced* that are eventually completed. A high *CR* can result from skill in negotiating regulatory hurdles, for example by finding creative ways to dispose of assets to overcome antitrust barriers. Hence the pursuit of *RET* and *CR* need not be inconsistent.

## A2. Deal-Level Analyses

Table 5 in the main paper is a bank-level analysis, which calculates future performance across banks in each quintile and averages across banks. It considers each bank equally, irrespective of the number of deals it has undertaken. A different approach is a deal-level analysis, which considers each deal equally. Table A4 allocates each deal to a quintile according to the past performance of the advisor over the past 1, 2 or 3 years, and then calculates the average return of deals with top (bottom) quintile advisors. We consider only deals with one advisor, since a deal with multiple advisors may have advisors in different quintiles. Consistent with Table 5, we find significant persistence. For example, deals where the advisor was in the top quintile based on 2-year prior performance outperform the bottom quintile by 0.91%, which is significant at the 1% level. This persistence continues to hold after controlling for acquirer characteristics.

Similarly, Table 6 in the main paper is a bank-level regression. Table A5 conducts the deal-level analog, regressing a deal's CAR on advisor characteristics. As in Table A4, this analysis is restricted to deals with only one advisor.[3] Consistent with Table 6, past *RET* is positive and significant in five out of six specifications, and *SHARE* is negatively significant in all specifications.

[3] An alternative would be to include deals with multiple advisors, and calculate average performance measures across the different advisors. However, this would not allow us to cluster standard errors by the advisor to correct for correlation in residuals for deals advised by the same bank.

**Table A1: Description of Variables**

| **Panel A: Used in the calculation of residuals for completion rate and speed** | |
|---|---|
| Variable | Definition |
| TRANSVAL | Log of transaction value |
| RELSIZE | Transaction value / acquirer market cap one day before announcement |
| TARSIC | Log of number of target SIC codes |
| PERSTOCK | Stock financing as a percentage of bidder's market cap |
| TWOTIER | Dummy variable that equals 1 if deal was executed in two tiers |
| TO | Dummy variable that equals 1 if deal was a tender offer |
| HOSTILE | Dummy variable that equals 1 if deal was hostile |
| NOTARADV | Dummy variable that equals 1 if target had advisors |
| DIVERS | Dummy variable that equals 1 if acquirer and target share at least one two-digit SIC code |
| CHALLENGED | Dummy variable that equals 1 if deal was challenged |
| PUBLIC | Dummy variable that equals 1 if target was public |
| TOEHOLD | Acquirer's percentage ownership of target before announcement |
| **Panel B: Constructed for direct use in quintile analysis and regressions** | |
| Variable | Definition |
| CR | Fraction of deals completed for deals by an investment bank or investment bank-acquirer pair over a given number of years |
| CREXP | Fitted value from a regression of whether a deal was completed on deal characteristics defined in Panel A |
| CRRES | Residual from a regression of whether a deal was completed on deal characteristics defined in Panel A |
| TIME | Average time to completion for deals by an investment bank or investment bank-acquirer pair for a given number of years |
| TIMEEXP | Fitted value from a regression of time to completion of deals on deal characteristics defined in Panel A |
| TIMERES | Residual from a regression of time to completion of deals on deal characteristics defined in Panel A |
| SHARE | Market share by value of acquirer-advised deals for an investment bank over a calendar year |

## Table A2

Results from first stage regression of performance variables on deal characteristics. COMP is a dummy variable that equals 1 if the deal was completed. SPEED is the number of days between announcement and completion for completed deals. The regressors are described in Table A1. The sample period is 1980-2007 and t-statistics are in parentheses.

| | **COMP** | **SPEED** |
|---|---|---|
| TRANSVAL | -0.0021 | 1.9220 |
| | (1.23) | (2.83)*** |
| RELSIZE | -0.0061 | 4.0521 |
| | (3.94)*** | (6.53)*** |
| TARSIC | -0.0141 | 0.8964 |
| | (3.73)*** | (0.61) |
| PERSTOCK | -0.0002 | 0.3629 |
| | (3.24)*** | (16.75)*** |
| TWOTIER | 0.0645 | 36.7036 |
| | (1.84)* | (2.71)*** |
| TO | 0.0390 | -26.3473 |
| | (4.85)*** | (8.23)*** |
| HT | -0.3509 | 18.4458 |
| | (21.47)*** | (2.23)** |
| NOTARADV | -0.0308 | -9.3673 |
| | (6.10)*** | (4.79)*** |
| DIVERS | -0.0139 | -6.0216 |
| | (2.57)*** | (2.87)*** |
| CHALLENGED | -0.2356 | 28.7917 |
| | (19.50)*** | (5.26)*** |
| PUBLIC | -0.0423 | 33.7214 |
| | (7.69)*** | (15.73)*** |
| TOEHOLD | 0.0021 | 0.8554 |
| | (5.95)*** | (6.25)*** |
| Year FE | Yes | Yes |
| Target Ind FE | Yes | Yes |
| # obs | 10,933 | 10,298 |
| R-sqd (%) | 12.10 | 26.06 |

* significant at 10%; ** significant at 5%; *** significant at 1%

## Table A3

Persistence in other performance measures, and relationship between these measures and future returns. Panel A examines persistence in four other measures of performance. To be included in the analysis, a bank must have resolved at least 2j deals over the relevant period. *ALLCOMP* is a dummy that equals 1 if a bank successfully completed all deals resolved in the past j years and 0 otherwise, for j = {1,2,3}. *CRRES* is the average completion residual for deals resolved by the bank over the past j years. The completion residual for each transaction is calculated by regressing a completion dummy variable on a set of deal characteristics. *TIME* is the average time between announcement and completion for deals resolved by the bank over the past j calendar years. *TIMERES* is the average time residual, where the time residual for each transaction is calculated in an analogous manner to *CRRES*. In the first column, we sort banks into two groups based on *ALLCOMP*. For each group, we calculate the average *ALLCOMP* for deals announced by the banks over the next j years. The reported number is the difference between the two groups. In the second column, we sort banks into quintiles based on *CRRES*. For each quintile, we then calculate the average *CRRES* to future acquisitions announced by the banks in that quintile over the next j calendar years. The reported number is the difference between Q5 and Q1. The third and fourth columns are calculated analogously.

Panel B examines the relationship between the four other performance measures and future CAR. The groups and quintiles are as in Panel A. For each group (quintile), we calculate the average CAR to future acquisitions announced by the banks in that group (quintile) over the next j calendar years and report the difference between the two groups (Q5 and Q1). The sample period is 1980-2007. Autocovariance corrected t-statistics are in parentheses.

**Panel A: Completion Ratio and Time vs. Past Levels**

| | ALLCOMP | CRRES | TIME | TIMERES |
|---|---|---|---|---|
| 1yr on 1yr | 0.3444 | -0.0159 | 49.39 | 8.39 |
| | (11.27)*** | (1.18) | (8.78)*** | (1.78)* |
| 2yrs on 2yrs | 0.3226 | -0.0162 | 60.69 | 9.74 |
| | (7.14)*** | (1.36) | (8.65)*** | (2.13)** |
| 3yrs on 3yrs | 0.2670 | -0.0026 | 57.45 | 8.93 |
| | (4.52)*** | (0.26) | (6.92)*** | (1.78)* |

**Panel B: RET vs Past Completion Ratio and Time**

| | ALLCOMP | CRRES | TIME | TIMERES |
|---|---|---|---|---|
| 1yr on 1yr | 0.18% | 0.18% | -0.73% | 0.11% |
| | (0.88) | (0.52) | (2.03)** | (0.32) |
| 2yrs on 2yrs | 0.52% | 0.36% | -0.60% | 0.16% |
| | (2.40)** | (1.17) | (1.82)* | (0.51) |
| 3yrs on 3yrs | 0.46% | 0.31% | -0.98% | -0.37% |
| | (1.78)* | (0.93) | (2.75)*** | (1.10) |

* significant at 10%; ** significant at 5%; *** significant at 1%

## Table A4

Relationship between deal returns and past advisor performance. We take deals that hired only one advisor in our list of 143 advisors and sort them into quintiles based on their advisor's *RET*, *RETEXP* and *RETRES* over the past j calendar years, where j = {1,2,3}. We report the CAR, CAREXP and CARRES of deals in the top and bottom quintile by advisor. The sample period is 1980-2007 and t-statistics are in parentheses.

**Predicting CAR, CAREXP, and CARRES using Bank Past Performance**

| | Measure of Past Performance | | |
|---|---|---|---|
| Quintiles Measured Over | RET | RETEXP | RETRES |
| 1yr | | | |
| Q1 | 0.99% | 0.06% | -0.34% |
| Q5 | 1.46% | 1.22% | 0.40% |
| Q5 - Q1 | 0.46% | 1.15% | 0.74% |
| | (1.49) | (18.99)*** | (2.34)** |
| 2yrs | | | |
| Q1 | 0.53% | 0.11% | -0.41% |
| Q5 | 1.43% | 1.10% | 0.59% |
| Q5 - Q1 | 0.91% | 0.99% | 1.01% |
| | (2.96)*** | (17.95)*** | (3.07)*** |
| 3yrs | | | |
| Q1 | 0.49% | 0.07% | -0.17% |
| Q5 | 1.65% | 1.17% | 0.32% |
| Q5 - Q1 | 1.16% | 1.10% | 0.48% |
| | (3.55)*** | (19.62)*** | (1.50) |

* significant at 10%; ** significant at 5%; *** significant at 1%

**Table A5**

Determinants of CAR. The table considers deals for which only one advisor in our list of 143 advisors was hired. The dependent variable is a deal's CAR. The explanatory variable *RET* is the advisor's average CAR over the past j years. *SHARE* is the bank's market share, by value of deals, over the past j calendar years. Regressions include year fixed effects and standard errors are clustered by bank. The sample period is 1980-2007 and t-statistics are in parentheses.

| | **Determinants of Bank-Level CAR** | | | | | |
|---|---|---|---|---|---|---|
| | 1yr | 1yr | 2yrs | 2yrs | 3yrs | 3yrs |
| RET | 0.0635 | 0.0460 | 0.1628 | 0.1276 | 0.1964 | 0.1423 |
| | (1.76)* | (1.24) | (3.80)*** | (2.88)*** | (4.05)*** | (2.92)*** |
| SHARE | | -0.0705 | | -0.0695 | | -0.0768 |
| | | (6.15)*** | | (5.63)*** | | (6.39)*** |
| Obs | 10,988 | 10,988 | 10,836 | 10,836 | 10,625 | 10,625 |
| R-sqd (%) | 0.56 | 0.78 | 0.61 | 0.79 | 0.63 | 0.84 |

* significant at 10%; ** significant at 5%; *** significant at 1%

## References


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