**Comparative Advantage, Industry Specialization, and the Role of Investment Banks in M&As**

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**ABSTRACT**

This paper examines the role of industry specialist advisors in M&A transactions using the Additive Revealed Comparative Advantage (ARCA) index to proxy advisors' relative level of industry specialization. We find that industry specialist advisors generate higher returns for their acquirer clients. This result holds both for cross- and same-industry deals. We further find that in cross-industry deals, the value is added primarily by advisors specializing in the acquirer industry as opposed to those specializing in the target industry, with the value creation coming from specialist advisors' ability to select more synergistic targets and negotiate to pay a lower takeover premium. In addition to superior advice, we find that specialist advisor charge lower fees, suggesting that they are able to pass some cost efficiencies onto their bidder clients. The findings are consistent with the traditional perception of the superiority of industry specialists and show that specialization is beneficial to the M&A advisory market.

**JEL classification:** G14, G24, G34

**Keywords:** Industry Specialist advisors; Acquirers, Abnormal Returns, Advisory Fees

**Acknowledgement:**

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## 1. Introduction

This paper examines the effect of industry specialist advisors on M&A outcomes for acquirer clients. The idea that specialization enables productivity gains is well established. Differentiation by industry enables the specialist to gain competitive advantage and to compete on dimensions other than price. Indeed, existing research suggests that industry specialization fosters the development of core competencies, an effect empirically documented in diverse fields such as auditing (Craswell, Francis and Taylor (1995); Balsam, Krishnan and Yang (2003); and Dunn and Mayhew (2004)), security analysis (Clement (1999); Jacob, Lys and Neale (1999)) and private equity (Cressy, Munari and Malipiero (2007)). In the context of M&As, anecdotal evidence suggests that even large investment banks, which typically have diversified business across industries, maintain groups specializing along industry lines.[1] Consistent with this observation, our data indicate that investment banks do specialize and the use of industry specialists tends to dominate in the M&A market. During the period 1985 and 2010, 55% (52%) of acquirers (targets) hired an industry specialist to advise on a transaction. Despite specialists being frequently used in M&A transactions, there is little research that examines whether industry specialization by advisors benefits acquiring firms. With the exception of Song, Wei and Zhou (2013) who explore the value of "boutique advisors" that specialize in providing M&A advice only, most research into the role of investment banks has been limited to the significance of advisor league table rankings in the M&A advisory market (e.g., McLaughlin (1992); Servaes and Zenner (1996); Rau (2000); Kale, Kini and

[1] Many of the large investment banks have industry groups, where groups of individual bankers specialize. It is thus possible that a deal is advised by specialist bankers even if the investment bank itself is not classified as a specialist in an industry. We are, however, unable to measure specialization at the individual banker level due to data limitation. Instead, we argue that specialization can be inferred at the institutional level where industry specialist bankers come together as a group in the institution to advise a deal. As the specialization level of the institution increases, we expect that more resources will be directed to that industry to hire and retain industry specialists. This should lead to a larger number of specialist bankers working in a particular industry. Consistent with this view, Stigler (1951) suggests that increases in the returns to individual specialization should lead to greater firm specialization, hence the two should move together.

Ryan (2003); Golubov, Petmezas and Travlos (2012); Walter, Yawson and Yeung (2008); Sibilkov and McConnell (2014)). The evidence is on this is, however, frustrating in the sense that reputable advisors are generally found to not add value to their acquirer clients.[2]

In this paper, we shift away from advisor rankings to consider the value-added role of industry specialist advisors in the M&A market. Drawing on the established theories of industry specialization and organizational learning (see e.g., Dierickx and Cool (1989)), we hypothesize that specialist advisors add value to their acquirer clients in at least two ways. First, specialization enables advisors to concentrate both resources and learning effort on a narrow range of industries, thereby accelerating the acquisition of industry-specific knowledge and skill. Compared with non-industry specialist advisors, for example, specialist advisors may have developed sophisticated valuation models in their focal industries. This can help acquiring firms better identify and evaluate the potential synergistic value of a deal. By working closely with firms specific to an industry, they may have also established extensive networks of connections necessary for extracting information important to an acquisition's success. With these industry-specific assets, we expect specialist advisors to do better than non-industry specialist advisors, *ceteris paribus*. Second, specialization can improve advisors' incentives to apply costly effort to deals originating from their focal industries. Compared to non-industry specialists, specialist advisors are likely to be under greater pressure to offer high-quality service since they have a significantly greater amount of firm resources tied up in an industry (e.g, Riordan and Williamson (1985); Williamson (1993)). Thus, specialization permits an advisor to be more competitive in an industry but at the same time, makes it costly for the advisor to lose business from their focal industries (Kanatas and Qi (2003); Prendergast (2002)). As a result, we expect advisors to be more cautious in providing advice to deals from their specialized industries. All else equal, this should translate into better acquisition outcomes.

Industry specialization of financial advisors also has important implications for M&A advisory fees. The theoretical models of Klein and Leffler (1981) and Chemmanur and Fulghieri (1994) posit that

[2] The only exceptions are Kale, et al. (2003) and Golubov, et al. (2012) who both find a positive link between advisor ranking and acquirer abnormal returns in only *public deals*.

firms offering high quality services will receive premium fees to reflect the increased costs of producing superior service. Accordingly, if industry specialist advisors are able to offer superior service, they should be associated with higher advisory fees. On the other hand, industry specialization may generate cost efficiencies through economies of scale and at the same time, "lock in" an advisor to its specialized industries. Given that specialist advisors hold specialized assets and have significant reliance on focal industries, they may have lower bargaining power which forces them to share cost savings with their bidder clients. If this is the case, specialist advisors should charge lower fees. Given these conflicting predictions, assessing the effects of industry specialization on the level of M&A advisory fees becomes an empirical issue.

Industry specialization is unobservable, though a variety of proxy measures exist in the literature. The method we use to determine advisors' respective specialization levels is the Additive Revealed Comparative Advantage (ARCA) index, adapted from the international trade and technological specialization literature (see Balassa (1965); Archibugi and Pianta (1994); Cressy, et al. (2007)). Compared with traditional methodologies such as industry market share and portfolio share, this measure gives consideration to both large and small investment banks, and allows specialization levels to be comparable across investment banks and across industries. Another research design issue is endogeneity which arises because the use of a specialist advisor is unlikely to be randomly determined. For instance, specialist advisor with greater concern over its industry reputation may avoid participating in deals which it believes are *ex ante* value-destructive, given that these deals render greater reputation risks. It is also possible that acquirers selectively choose a particular type of advisor. For instance, they may prefer an industry specialist when they have limited knowledge about the target firms' industry and believe it could significantly affect the synergistic value of the deal. Our identification strategy is to employ a two-stage treatment procedure throughout the analysis.

Using a large sample of M&A transactions announced in the U.S. over the period between 1985 and 2010, we find a significant and positive relation between advisor industry specialization and bidder abnormal returns, after controlling for selection bias. This value creation does not differ between cross-

industry and same-industry transactions. However, in the case where an acquirer undertakes a cross-industry transaction, we find that using an advisor that specializes in the acquirer industry (acquirer-industry specialist hereafter) significantly improves the acquirer's abnormal returns around the announcement, while the use of advisor specializing in the target industry (target-industry specialist hereafter) has no signficant impact on acquirer returns. Our findings also suggest that the value creation comes from specialist advisors' superior ability to both reduce takeover premiums and locate synergistic targets for their acquirer clients. The evidence is consistent with the notion that specialization induces advisors to work diligently for their acquirer clients and allows them to build competitive advantage in advising deals specific to their specialized domain. Lastly, our analysis on the pricing of M&A advisory services reveals that advisor industry specialization has a significant and negative impact on advisory fees. This evidence is most consistent with the proposition that industry specialization allows some cost efficiencies to be passed onto bidder clients.

This paper contributes to the M&A literature in several notable ways. It is the first study, to our knowledge, that examines the value-added role of industry specialists in M&As. By using the ARCA index as a proxy for industry specialization, we show that industry specialist advisors significantly enhance the shareholder value of acquiring firms by reducing the cost of acquisition and locating more synergistic targets. The study also provides new insights into the determinants of M&A advisory fees. We show that advisor industry specialization is an important factor affecting advisory fees. By reducing costs through economies of scale, industry specialization enables advisors to charge lower fees. Finally, the study offers practical solutions for the choice of financial advisors in M&A transactions. For instance, given that investment banks commonly advertise their specialized industries online, our findings help acquiring firms make rational and more informed choices of financial advisors.

The remainder of the paper is organized as follows. Section 2 presents the theory and Section 3 outlines the data and sample construction procedures. This is followed by the empirical results in Section 4. Section 5 concludes the paper.

## 2. Theory

### *2.1. Industry Specialization and M&A Advisors*

Industry specialization can be defined as the degree to which a firm concentrates on a single or group of related industries in which it has a comparative advantage (Argote (1999); Jacobides and Winter (2005); Hartfield, Liebeskind and Opler (1996); Chamberlin (1933), Friedman (1953), Lado, Boyd and Wright (1992)). It has been commonly held that industry specialization improves performance by facilitating the development of specialized factors of production that are necessary for firms to compete at low cost and/or produce high quality service in their focal industries (Montgomery and Wernerfelt (1988); Hartfield, et al. (1996); Solomon, Shields and Whittington (1999); Jacob, et al. (1999); Moroney and Simnett (2009); Carson (2009)). In the investment banking industry, however, banks have more limited specialized factors of production than do other industrial firms because the difference in advisory skill sets across industries is not clear cut. Yet, anecdotal evidence suggests that investment banks create industry groups, a practice that amounts to a specialized factor of production. Thus, even if a large component of advisory skills is general and transferable across industries, the validity of the industry-specific, non-transferable part of the skill set cannot be disregarded. We expect advisor industry specialization to affect acquisition performance in at least two ways. First, specialization enables investment banks to concentrate firm resources and learning effort on deals from a narrow range of industries, thereby accelerating the acquisition of industry-specific knowledge and skills needed to attain superior performance (Bonner and Lewis (1990); Schilling, Vidal, Ployhart and Marangono (2003)). We label this as the "industry expertise" hypothesis. By repeatedly working on deals from the same industry, for instance, specialist advisors may develop in-depth and up-to-date knowledge of their focal industries, including knowledge of pertinent industry trends, regulation, technologies and other specific events that may affect the financial performance of the merging firms. This knowledge is valuable since identifying the synergistic opportunities associated with a potential target and assessing how likely these synergies will be realized in the future requires advisors to have accurate knowledge about the general trend of the

market and how industries of the target and the acquirer may perform under different economic conditions. Moreover, industry-level knowledge can have a significant influence on the formation of valuation techniques used to price a firm's assets. For example, the methodology used to evaluate a high-tech firm that has a large proportion of intangible assets is clearly different from that used to value a manufacturing firm with a large proportion of tangible assets. By incorporating the short-run and long-run industry dynamics into their valuation models, specialist advisors are likely to have better ability to help their acquirer clients price a deal.

Second, specialist advisors are likely to have a greater incentive to maintain their reputations in the industries in which they specialize (e.g., Klein and Leffler (1981); Chemmanur and Fulghieri (1994); Diamond (1989); Gopalan, Nanda and Yerramilli (2011)). We label this as the "industry reputation concerns" hypothesis. Specialization creates competitive advantages but at the same time, ties up a significant amount of an advisor firm's capital in a narrow group of industries. To generate specialized assets that are highly productive in an industry, for instance, an advisor needs to make substantial investments to attract industry-specific talents, as well as conducting specialized training to develop and nurture relationships with clients from the industry. Once the cost of these investments becomes sunk, the advisor is likely to be under pressure to recoup the costs with increased revenues from that industry (McGuinness 1994). This provides the advisor with strong incentives to establish and maintain industry reputation by working diligently for the deals originating from its specialized industry. Furthermore, specialization that limits an advisor's businesses to a few industries unavoidably increases the reliance of the advisor for a significant part of its revenue from the specialized industries. The revenue concentration magnifies the reputation effect because the reputational damage and the resulting loss of future business can have more adverse effect on the advisor's future revenue when it occurs in the specialized as opposed to non-specialized industries (Kanatas and Qi (2003)). We thus expect that

compared to non-industry specialists, industry specialist advisors are more cautious in advising deals from their specialized industries. Other things equal, this should translate into better acquisition outcomes.

Advisor industry specialization has important implications for M&A advisory fees as well. Klein and Leffler (1981) model the relationship between quality and the price premium in a product market, where firms sell their products repeatedly to clients and the quality of the products can only be known after the purchase (i.e., not *ex-ante* observable). In this setting, a price premium arises to compensate firms for the increased costs incurred in producing quality. It also provides incentives for firms to continually supply high quality products. Chemmanur and Fulghieri (1994) extend the work of Klein and Leffler (1981) and model the relationship between quality, reputation, and fees specific to the investment banking industry. They show that because investment banks need to repeatedly sell their service in a market, they have incentives to provide high-quality service and charge higher fees. Accordingly, if industry specialization produces high quality service, it should have a favorable impact on the advisory fees received by specialist advisors.

Conversely, industry specialization can result in lower fees for two reasons. First, it generates cost efficiencies that may arise from different sources. By establishing and maintaining close relationships with clients in the specialized industry, for example, an advisor may save the information costs incurred in learning about its clients in the case of repeated deals. Savings can also be achieved by effectively spreading the cost of specialization over different product lines (e.g., M&A, debt and equity underwriting). As a result, specialist advisors may be willing to pass some cost savings onto their bidder clients in order to compete for future business (Mayhew and Wilkins (2003)). Second, the holding of specialized assets together with the reliance on specialized industries for its major revenue "locks in" an advisor to an industry. This can potentially reduce the advisor's bargaining power against its industry customers, forcing the advisor to charge lower fees.

*2.2. Measuring Industry Specialization*

A factor complicating our assessment of investment banks' specialization over time is that specialization tends to be at the individual rather than institutional level and that we do not observe the industries in which each banker actually specializes. However, neoclassical economic theory suggests that firms specialize in industries in which they have a comparative advantage (Chamberlin (1933); Friedman (1953)). For investment banks specialization, this can be "revealed" through the real-world inter-bank performance across industries (Balassa (1965)). Accordingly, we infer the industries in which each advisor specializes by employing the index of Revealed Comparative Advantage (RCA), which has been widely used as a proxy for firm specialization in the international trade and technological specialization literature (Balassa (1965); Archibugi and Pianta (1994)), as well as in the field of corporate finance (e.g., Cressy, et al. (2007)). Specifically, the RCA index can be written as:

$$RCA_j^i = \left(X_j^i / X^i\right) / \left(X_j^A / X^A\right) \quad (1)$$

Where: $RCA_j^i$ = the RCA value of $investment\ bank_i$ in $industry_j$; $X_j^i$ = the value of M&A deals advised by $investment\ bank_i$ in in $industry_j$; $X^i$ = the value of M&A deals advised by $investment\ bank_i$ across all the industries; $X_j^A$ = the total value of M&A deals advised in $industry_j$ by $all\ investment\ banks$; $X^A$ = the total value of M&A deals advised by $all\ investment\ banks$ across all the industries. We define industry using the 3-digit SIC code. To account for the dynamics in the M&A advisory market, we calculate individual advisors' industry specialization level over a five–year window prior to the announcement date. In the case of multiple advisors, full credit is given to each advisor.

A major advantage of the RCA index over other specialization measures (e.g., industry market share approach) is that it takes into account both the industry size and the bank size, thus making advisor industry specialization levels comparable across industries and banks. In particular, the RCA compares the portfolio share of $industry_j$ in $investment\ bank_i$ $\left(X_j^i / X^i\right)$ to the expected portfolio share of the same industry for an average investment bank $\left(X_j^A / X^A\right)$. Thus, if the RCA value is greater than one,

$investment\ bank_i$ is specialized in $industry_j$ relative to the reference bank and not specialized otherwirse. In a numerical example, consider an investment $bank_i$ that had advised M&A deals with a total value of \$10 million across all industries ($X^i$), of which \$2 million came from the high-tech industry ($X_j^i$). Thus, the bank's portfolio share of the high-tech industry is 20%. Now suppose the aggregate value of M&A deals was \$1 billion in the high-tech industry ($X_j^A$) and \$10 billion across all industries ($X^A$). This implies that the share of high-tech industry is 10% in an average investment bank's portfolio. Obviously, $investment\ bank_i$ is relatively specialized in the high-tech industry when compared to the average investment bank. Consistent with this intuition, the RCA value of $investment\ bank_i$ equals 2, suggesting that it is a specialist in the high-tech industry.

A potential drawback of the RCA index is that it has an unstable mean that can be greater than the theoretical value of one, and the distribution is asymmetric and hence sensitive to the classifications of industries (Hoen and Oostaerhaven (2006)). Consequently, the economic interpretation of RCA values can be ptoentially problematic. To address this problem, we employ a variation of the RCA index, namely, the Additive RCA (ARCA) (Hoen and Oostaerhaven (2006)). Formally, the ARCA index can be written as:

$$ARCA_j^i = \left(X_j^i / X^i\right) - \left(X_j^A / X^A\right) \quad (2)$$

where $ARCA_j^i$ is the ARCA of $investment\ bank_i$ in $industry_j$, and other notations are the same as defined in equation (1). Similarly to the RCA index, the ARCA compares the portfolio share of $industry_j$ in $investment\ bank_i$ with the share of the same industry in an average investment bank's portfolio. It differs from the RCA measure in that it takes the difference between the portfolio shares instead of the quotient as in equation (1) above, so that (1) it secures a stable mean of zero which is independent of the classification of industries; and (2) a symmetric distribution ranging from -1 to +1, which has been empirically demonstrated to be more stable than that of the RCA index (Hoen and

Oostaerhaven (2006)). Accordingly, if the ARCA value is greater than zero, $investment\ bank_i$ is specialized in $industry_j$, relative to the average investment bank and vice versa.

## 3. Sample and Data

### *3.1. Sample Construction*

The data on M&A transactions are drawn from *Thomson Financials Securities Data Collection Platinum (SDC)* database. While our sample covers the period between January 1985 and December 2010, the data are collected from 1980 because the estimation of the industry specialization measure requires information for each advisor five years prior to the deal's announcement. Both successful and unsuccessful deals announced from 1980 to 2010 are included if (1) the payment method is disclosed by SDC; (2) the transaction value is greater than $1 million; and (3) there is at least one investment bank advising the acquirer (rumoured deals are excluded).[3] The initial sample contains 19,060 transactions. We exclude deals classified as bankruptcy acquisitions, liquidations, leveraged buyouts, privatizations, repurchases, restructurings, reverse takeovers and 'going private' transactions. Applying this filter reduces the sample to 15,848 observations. We apply a further filter to our sample to include only deals where the acquiring firm owns less than 10% of the initial stake and seeks to own more than 50% after the transaction. This reduces the sample to 13,409 transactions.

We use this sample to calculate industry specialization levels of financial advisors proxied by ARCA. By definition if an investment bank advises on only one deal in the five year period, then it will automatically be classified as a specialist. Consequently, we remove all investment banks that advised only one deal. To ensure the accuracy and consistency of the industry specialization level for each advisor, we made the following adjustments. First, because SDC occasionally uses different names for the same

[3] We did not give consideration to whether the deal is completed or withdrawn because investment banks are expected to learn and accumulate industry-specific knowledge as long as they engage in deals announced in their focal industries.

advising bank (e.g., deals advised by 'Citi' are regarded as different from those advised by "Citigroup"), advisor names in such cases are combined into one when measuring the industry specialization levels. Second, M&As among advisors themselves may bring together the industry-specific assets of different investment banks. This will improve the performance of the deals advised by the newly merged banks. We therefore track all the mergers and acquisitions among investment banks across the sample period. For instance, Merrill Lynch and Banc of America Securities LLC merged to form Bank of America Merrill Lynch in 2008. Thus, if a deal advised by Merrill Lynch in an industry took place before its merger with Banc of America Securities LLC, we consider all the deals advised by Merrill Lynch alone in that industry over five years prior to the announcement date. In contrast, if a deal is advised by the newly merged bank, Bank of America Merrill Lynch, we take into account the deals advised by both banks in that industry during the five years preceding the announcement date. In the case where a bidding firm hires multiple advisors, we follow prior studies such as Rau (2000) and assign the highest degree of industry specialization among these advisors to the deal. After obtaining the industry specialization level for each advisor, we exclude observations from 1980 to 1984. The final sample consists of 12,020 deals. Out of these, 8,266 deals involve a bidder that has sufficient data from CRSP database to measure abnormal returns at the announcement date, while only 1,886 deals have advisory fees disclosed by SDC. The use of industry specialist advisors on the acquirer and the target side represents 55.45% and 52.48%, respectively, suggesting that industry specialist advisors play a dominate role in the M&A advisory market.

*3.2. Sample Statistics*

The thrust of this paper is to examine the role of financial advisor specialization. As such, an important concern is whether the industry specialization measure employed here captures attributes of investment banks other than reputation in the M&A advisory market, as measured by the traditional approach of the league table rankings. We, therefore, downloaded financial advisors league tables from *Thomson Financials SDC* database and ranked advisors based on the value of deals they advised. The top-

tier specification is similar to Golubov, et al. (2012).[4] In untabulated correlations matrix, we find a positive, significant, yet very low, correlation between the top-8 advisor dummy and the dummy of industry specialist advisor (0.0525), suggesting that top-8 advisors do not constitute a significant proportion of industry specialist advisors. This is expected given that large and established banks are more likely to diversify across industries than to specialize, when compared to smaller investment banks.

*3.3. Univariate Analysis*

Table 1 reports the descriptive statistics for the full sample as well as for the types of acquirer advisors classified on their ARCA value. Specifically, an advisor is considered as an industry specialist if its ARCA value is greater than zero and a non-specialist otherwise. We use the standard event study methodology to compute the cumulative abnormal returns (CARs) accruing to the acquirers over the event windows (-1, +1) around the announcement date. The CARs are measured based on the market model with a benchmark of the CRSP value weighted index and parameters estimated over a period from 300 days to 91 days prior to the announcement date. The results remain essentially unchanged when we use an equally weighted market index.

Panels A and B of Table 1 present descriptive statistics for the deal and the acquirer characteristics, respectively. Compared to non-industry specialists, industry specialist advisors are involved more in deals in which (1) the transaction is absolutely large; (2) the bid is for a public or private target; and (3) the acquisition is financed by stock. They are less used in (1) relatively small deals, (2) tender offers, (3) transactions in which the payment is all-cash, (4) the target is a subsidiary firm and (5) the deal is hostile. The differences in these characteristics are significant at the 1% level. Broadly, the univariate results suggest that acquirers with more "difficult" deals are likely to select industry specialist

[4]The following eight financial advisors are classified as the top-8 advisors: Goldman Sachs, Merrill Lynch (now Bank of America Merrill Lynch), Morgan Stanley, JP Morgan, Citi, Credit Suisse, Lehman Brothers (now Barclays Capital) and UBS.

advisors. We also find that industry specialist advisors are employed less frequently in cross-border and cross-industry transactions. One possible reason is that bidding firms undertaking diversifying acquisitions are more appreciative of the diverse experience of larger investment banks than the deep, yet narrow, knowledge base possessed by industry specialists.

In terms of bidder characteristics, industry specialist advisors are associated with acquirers that exhibit higher run-up (8.6% versus 6.9%) and lower free cash flow (4.9% versus 5.8%), when compared to acquirer clients of non-industry specialists. There are, however, no significant differences between the two groups of advisors in terms of bidder size, Tobin's Q, leverage, and sigma.[5] Overall, the choice of industry specialist advisor appears to be affected by certain deal and acquirer specific characteristics. Thus, it is important to account for self-selection bias when assessing the "true" effect of industry specialist advisor on acquiring firm's shareholder wealth creation.

In Panel C of Table 1, we present the summary statistics for the key transaction outcomes. Acquirers advised by industry specialists pay mean (median) percentage premiums at 43.30% (35.28%), whereas acquirers advised by non-industry specialist advisors pay mean and median premiums of 45.30% and 36.43%, respectively. The differences in both mean and median are, however, statistically insignificant. The mean (median) value of the 3-day bidder CARs in the full sample are 0.3% (0%). Deals advised by industry specialist advisors have a mean (median) 3-day bidder CAR of 0.0% (-0.3%), while transactions advised by non-specialist advisors have a higher mean (median) CAR of 0.7% (0.2%). This appears to be contradictionary to our expectation that specialist advisors add more value to acquirer clients than do non-industry specialists. However, the univariate analysis could be misleading because it does not control for different deal and firm characteristics. We therefore estimate an OLS regression of acquirer 3-day CAR on industry specialist advisor, controlling for deal and bidder characteristics that have been shown in prior studies to be important in explaining acquirer CARs. To capture the interaction

[5] Sigma measures a bidding firms' idiosyncratic volatility and is defined as the standard deviation of the market-adjusted daily returns of the bidder's stock over a 200-day window (-205, -6) (Moeller, Schlingemann and Stulz, 2007).

effects of target public status and payment methods on bidder abnormal returns, we create six additional dummy variables: *public targets* × *payment include stock, public targets* × *all-cash, private targets* × *payment include stock, private targets* × *all-cash, subsidiary targets* × *all-cash, and subsidiary targets* × *payment include stock* (the base group). In all models, we control for year fixed effects (however we suppress these coefficients in the results tables). The sample is split into merger and tender offers subsamples as prior research suggests that mergers and tender offers yield different returns to acquirer and target firms (Jensen and Ruback (1983); Loughran and Vijh (1997); Bradley, Desai and Kim (1988); Kisgen, "Qj" Qian and Song (2009)). Table 2 presents the results. We find that after controlling for deal and acquirer characteristics, the use of industry specialist advisor does not have a significant impact on acquirer abnormal returns in the full sample and the subsamples that split the data into mergers and tender offers. However, the evidence in Table 1 indicates that the choice of specialist advisors is unlikely to be random. Moreover, whether to hire an industry specialist advisor or not is a choice on the part of the bidder. This endogenous selection process may, therefore, bias OLS estimates of the impact of industry specialist on acquisition outcomes. We address this problem by employing a two-step treatment model.

**[Insert Tables 1 & 2 here]**

## 4. Empirical Analysis

### *4.1. Econometric Model*

Our primary regression model of interest is:

$$y_i = \gamma industry\ specialist_i + X_i\beta + \varepsilon_i, \quad (3)$$

where $y_i$ is the acquisition outcome measured by acquirer abnormal return, takeover premium, synergy and advisory fee. $X_i$ is a vector of exogenous variables affecting $y_i$; $industry\ specialist_i$ is the variable of interest measured using the ARCA index. It is included in the model as a dummy variable indicating

whether or not an acquiring firm employs an industry specialist advisor; and $\varepsilon_i$ is the error term. In this setup, the OLS estimator will yield consistent estimates of specialist advisor if the acquirer's choice of advisor is not affected by unobservable factors that are also correlated with the error term $\varepsilon_i$ in equation (3). That is, $industry\ specialist_i$ must be exogenous. As the matching is unlikely to be random, we use a two-stage estimator to correct for self-selection bias (e.g., Maddala (1983); Terza (1998)). In particular, we model the endogenous decision of hiring a specialist as the outcome of an unobservable underlying variable, $industry\ specialist_i^*$, which is determined by a vector of exogenous variables $Z_i$ and a random component $\mu_i$. The treatment rule is that if $industry\ specialist_i^*$ exceeds zero, the acquiring firm employs an industry specialist advisor; otherwise, the acquiring firm uses a non-specialist advisor:

$$industry\ specialist_i^* = Z_i\delta + \mu_i \tag{4}$$

where

$$industry\ specialist_i = \begin{cases} 1 & if\ industry\ specialist_i^* > 0 \\ 0 & if\ industry\ specialist_i^* \leq 0 \end{cases}$$

Equation (4) is also known as the first-stage treatment equation. We obtain the probit estimates of this equation for the two types of advisors:

$Prob(industry\ specialist_i = 1|Z_i) = \Phi(Z_i\delta)$; and

$Prob(industryspecialist_i = 0|Z_i) = 1 - \Phi(Z_i\delta)$

where $\Phi(\cdot)$ is the cumulative distribution function of the standard normal distribution. From these probit estimates, we compute the hazard ratio $h_i$ for each observation as:

$$h_i = \begin{cases} \varphi(Z_i\delta)/\Phi(Z_i\delta) & if\ industry\ specialist_i = 1 \\ -\varphi(Z_i\delta)/[1 - \Phi(Z_i\delta)] & if\ industry\ specialist_i = 0 \end{cases} \tag{5}$$

$\varphi(\cdot)$ is the density function of the standard normal distribution. According to Maddala (1983), augmenting equation (3) with the hazard ratio $h_i$ allows for equation (6) below to be consistently estimated by OLS.

$$y_i = \gamma industry\ specialist_i + \lambda h_i + X_i\beta + \upsilon_i \quad (6)$$

The significance of Lambda, the coefficient of $h_i$, indicates the presence of selection bias. This two-step estimator has been adopted to correct for self-selection bias in Song, et al. (2013) and Kisgen, et al. (2009) in studying the value added by financial advisors in mergers and acquisitions.

To identify the model, it is advisable to have at least one exclusion restriction that affects the selection ($industry\ specialist_i^*$) but has no direct impact on the outcome ($y_i$).[6] The primary exclusive restriction that we employ is the number of industry specialists with their headquarters located in the acquirer's federal state during the announcement year. The recent study by Francis, Hasan and Sun (2012) indicates that acquiring firms prefer local financial advisors even in cross-border deals. Hence, one may expect that the probability for an acquirer to select an industry specialist advisor is higher if a greater fraction of advisors in the acquirer's local area is specialized. Meanwhile, there is no obvious reason to believe that the number of specialist advisors headquartered in the acquirer's federal state would directly affect the current deal's performance.

*4.2. Bidder Abnormal Returns*

*4.2.1. Main Results*

We examine the relation between advisor industry specialization and bidder abnormal returns using the two-step treatment procedure as described in Section 4.1. The dependent variable in the second stage (Equation 6) is bidder $CAR_{i,t}$, the cumulative abnormal return calculated over the event window (-1, +1) for the deal advised by $Invstment\ bank_i$ at time $t$.[7] We include the same deal and bidder characteristics as in Table 2. Table 3 presents the results for the analysis. The exclusion restriction

[6] Strictly speaking, the identification of the treatment model does not require any exclusion restriction since the second-stage model is augmented with the hazard ratio, which is a nonlinear function of the variables (i.e., $Z_i$) included in the first-stage probit model. It is this non-linearity that identifies the second-stage model, even if the two sets of independent variables included in the first- and second-stage equations ($X_i$ and $Z_i$) are identical (Heckman (1978);Wilde (2000)). It is advisable, however, to have at least one exclusion restriction.

[7] To test whether our results are robust to different event windows, we re-run the regressions on CAR (-2, +2), CAR (-5, +5), and CAR (0, +250). The results remain qualitatively the same as that reported for CAR (-1, +1).

employed here is the number of industry specialists with their headquarters located in the acquirer's federal state. Columns (1) and (2) report the results for the full sample; columns (3) and (4) provide the estimates for the merger subsample; and the results for the tender subsample are presented in columns (5) and (6).

A number of features are worth noting in the results presented. The coefficient of the number of industry specialists headquartered in the acquirer's federal state is positive and significant at the 1% in both full sample and merger subsample, suggesting that our exclusion criterion is effective. Furthermore, the regression coefficients of the selection equations (columns 1, 3 and 5, Table 3) suggest that the probability of an acquirer using a specialist advisor is significantly higher when the firm is large and in stock-financed deals for all the selection models, except that the latter is insignificant for tender offers. The results in column (1) also show that when the transaction involves a foreign target or when the transaction size is larger, the probability of using a specialist advisor is significantly lower. These results appear to be largely driven by mergers. The significant coefficients of the variables show that they are important factors affecting an acquirer's choice of advisor and that the selection process is indeed endogenous.

In the outcome models (column 2, 4, and 6 of Table 3), we note that the size of the self-selection bias is substantial. We observe that the hazard ratio ("Lambda") is negative and statistically significant at the 1% level in all models. This indicates that endogeneity is present. The negative coefficients on the hazard ratios suggest that some unobservable factors simultaneously decrease the probability of using an industry specialist advisor and decrease acquirer abnormal returns. Importantly, and consistent with expectations, the coefficients on industry specialist are positive and statistically significant at the 1% level in all models, which supports the proposition that specialist advisors are indeed able to deliver value to their acquirer clients in M&A transactions.

The coefficients on the control variables generally agree with the extant literature. For example, we find that bidder's market capitalization has a negative and significant (at the 1% level in the full and merger subsample and 5% in the tender offer subsample) impact on bidder abnormal returns, a finding

that is consistent with Moeller, Schlingemann and Stulz (2004). The coefficient on bidder leverage is positive and significant at the 5% level only in the full sample. The interaction term, "*public targets* × *payment include stock"* negatively and significantly affects (at the 1% level) bidder abnormal returns in the full sample and the merger subsample whereas "*public targets* × *all-cash"* is also negative and significant (at the 1% level in the full and merger subsample). The results also show that "*private targets x payment include stock"* is negatively and significantly associated with bidder abnormal returns.

**[Insert Table 3 here]**

*4.2.2. Industry Expertise versus Industry Reputation Concerns*

The findings in the previous section suggest that advisor industry specialization enhances acquiring firms' shareholder wealth, regardless of acquisition method. This is consistent with both "industry expertise" and "industry reputation concerns" hypotheses. In this subsection, we explore further whether the positive wealth effect of advisor industry specialization differs by industry relatedness. Naturally, one may expect that specialist advisors' expertise is more valuable in a cross-industry rather than in a same-industry deal, given that acquirers are likely to face more severe information asymmetry when evaluating a potential target in unrelated sectors. We thus split the sample into cross- and same-industry deals and re-conduct the CAR analysis, using the same two-step treatment procedure. We rely on the exclusion restriction, namely, the number of industry specialist advisors that maintain their headquarters in the acquirer's federal state, to identify the model. Table 4 documents the results of this exercise. Consistent with our expectations, we find that the industry specialist variable is positive and highly significant (at the 1%) in the cross-industry sub-sample (column (2)). We also find that the use of industry specialist advisors have a positive and significant impact on acquirer returns in the same-industry subsample (column (4)). One possible explanation is that the value of specialist advisor is not limited to reducing information asymmetry typically present in a cross-industry transaction. When the acquiring firm and the target are in the same industry, specialist advisors with superior knowledge about both merging firms may have better

ability to "package and present" the deal to potential investors, thereby creating a positive market reaction..

**[Insert Table 4 here]**

To gain further insights into this result, we divide industry specialist advisors into two groups: acquirer advisor specializing in the acquirer industry, which equals 1 if the acquirer uses an advisor specializing in its own industry; and 0 otherwise; and acquirer advisors specializing in the target industry, which is equal to 1 if the acquirer hires an advisor specializing in the target industry; and 0 otherwise. We restrict the focus to the cross-industry deals in which an acquirer is likely to face significant uncertainty about the target value. If the industry specialist creates value primarily by reducing information asymmetry, we will expect target-industry specialist advisors to be more valuable to the acquirer, given that their knowledge and networks within the target's industry provide them with advantage in producing useful information on the target. If, instead, industry reputation concerns are the driving force for the positive specialist-acquirer CAR relation documented above, then advisors specializing in the acquirer industry would have stronger incentive to create value than do target-industry specialists. The reason is that the acquirer, which is the surviving firm in a typical transaction, is likely to give the advisor more follow-on businesses (e.g., securities underwriting, M&A advice) if the advisor specializes and hence, has substantial knowledge and networks in the acquirer's industry. By contrast, when the acquirer employs an advisor specializing in the target industry (and thus, outside of its core industry), the current transaction is likely to be one-off unless the acquirer attempts to take over another target in the same industry within a short period of time. Consequently, this difference in the potential for future dealings induces different levels of industry reputation concerns across specialist advisors.[8] We test these implications by estimating separate regressions of acquirer CAR on acquirer advisor specializing in the acquirer and the target

[8] In the case of same-industry transactions, the difference in reputation concerns between target- and acquirer-industry specialists is likely minimal, since advisor specializing in the target-industry also specializes in the acquirer industry and vice versa.

industry, for the cross-industry subsample. We employ the same two-step treatment procedure, with each model identified by the number of advisors specializing in the acquirer and the target industry that maintain their headquarters in the acquirer's federal state, respectively.

Table 5 reports the estimated results for the second-stage equation of CAR. Columns (1) and (2) estimate the impact of acquirer-industry specialist advisor on acquirer announcement abnormal returns for the cross-industry deals; columns (3) and (4) report the estimation results using the target-industry specialist advisor. We find that the use of an acquirer industry specialist generates a strong, positive, and highly significant impact on acquirer CAR. In contrast, the target industry specialist variable is statistically insignificant in column (4). These findings, therefore, buttress the argument that specialization enhances acquiring firms' shareholder value primarily through its impact on advisors' incentives to apply costly efforts. The incentive for acquirer-industry specialist to provide high-quality service is relatively strong, because the probability that the acquirer will hire an acquirer-industry specialist in subsequent deals is high.This enables them to better understand acquirer clients' needs and allows for customized services that match the acquirers' strategic portfolio.

**[Insert Table 5 here]**

*4.3. Source of value creation*

*4.3.1. Deal premium*

One way for industry specialist advisors to create value for their acquirer clients is to use their industry-specific knowledge to reduce the acquisition costs. We investigate this contention by examining the deal premiums paid to the target shareholders, defined as the percentage premium of offer price over the target price four weeks before the deal is announced. We control for deal and acquirer characteristics that are important determinants of deal premium. As premiums paid are likely to be influenced by the negotiation

ability of the parties involved, we also control for the target use of a specialist advisor and the use of top 8 investment bank by the target. Following Officer (2003), we winsorize the percentage premium if the value is outside the range of [0%, 200%]. We limit the analysis to public deals for which we are able to obtain data on target share price information. In untabulated results, we find the number of industry specialists headquartered in the acquirer's federal state does not have any explanatory power in the first-stage model. We therefore employ an additional exclusion restriction, "*prior use of industry specialist*", to achieve stronger model identification. It is a binary variable which equals one if the acquirer had hired an industry specialist advisor over the last five years before the announcement date; and zero otherwise. This variable is constructed to capture unobserved factors that influence the propensity of using a specialist across acquiring firms over time. It is excluded on the basis that an acquirer's prior use of specialist advisor should not directly affect the current deal's outcome but rather, operate *indirectly* through its impact on the acquirer's current decision of employing a specialist advisor if there is any.

Table 6 presents the deal premium results after controlling for self-selection bias using a two stage treatment procedure as outlined in Section 4.1. The first-stage regression results show that the exclusion restriction, "*prior use of industry specialist*", is significant at the 5% level in both the full sample and tender subsample, and marginally significant in the merger subsample. The second-stage results show a negative and significant association between the use of a specialist and premium paid in both the full sample and merger subsample. This finding implies that industry specialist advisors have better negotiation skills thus preventing the bidder overpaying. We also find that premium is lower when the target employs a specialist advisor. Thus bidder advisors still have strong negotiation skills even after controlling for the target's use of a specialist advisor.

Partitioning the sample into merger and tender offer subsamples, we find that our results are driven by the merger subsample as the coefficient estimates on both industry specialist and target industry specialist are negative and statistically significant at the 1 percent level (column 4). However, we do not find significant effects of industry specialist on the deal premium in the tender subsample. This value

creation is in part created by specialist advisors' ability to negotiate lower premiums and prevent overpaying for the target.

**[Insert Table 6 here]**

*4.3.2. Total synergies*

To better understand the positive market reaction to specialist-advised deals, we investigate whether specialist advisors add value to their acquirer clients by identifying targets with greater synergy. We explore this possibility by investigating the total synergy created in the transaction. We follow Golubov, et al. (2012) and define total synergies as the aggregate wealth gains made by both the bidder and the target, with wealth gains being a product of the three-day CARs and the market capitalization of the respective firms 11 days prior to the announcement date. Again, we control for endogeneity as outlined in Section 4.1 and provide the results for the two-step treatment procedure of total synergy created in Table 7. We focus the discussions on the second stage results as presented in columns 2, 4 and 6. In the full and the merger subsample, we find a positive and significant (at the 1% and 10% level, respectively) association between the use of a specialist advisor and the synergies created in the transaction. Our results indicate that specialist advisors possess the ability to identify synergistic targets to the benefit of the bidder.

Combining the total synergy analysis with the premium results, we demonstrate that industry specialists create value for their acquirer clients by reducing acquisition costs and at the same time identifying more synergistic deals.

**[Insert Table 7 here]**

*4.6. M&A Advisory Fees*

M&A advisory fees may also be endogenously determined as acquirers can self-select specialist advisors on the basis of fee expectations. To the extent that self-selection is present in the data, results based on OLS estimates will not be reliable. Accordingly, we again correct for endogeneity using the two-step treatment procedure. We estimate equation (5) in which the dependent variable is the natural logarithm of advisory fees paid by the bidding firm to $Invstment\ bank_i$ at time *t*. The remaining variables have the same definitions as in equation (3). The sample used here includes completed transactions only because advisory fees are only reported by the SDC database when the deal succeeds.

We provide the results for the two-step treatment procedure in Table 8. Specifications (1) and (3) provide the first-stage results where the probability of using a specialist is determined and the fee regression results are provided in specifications (2) and (4) for the full sample and merger subsample, respectively. We are unable to produce fee regressions for the tender offer subsample due to the small sample size. The hazard ratio is positive and significant at the 1% level in both columns (2) and (4). This suggests that some unobservable characteristics increase the probability of using an industry specialist also increase advisory fees. After controlling for selectivity, we find a significant negative relation between industry specialist and the advisory fee charged in the full sample and the merger subsample. These findings provide evidence that advisors are able to pass cost efficiencies achieved through economies of industry specialization onto their acquirer clients. In addition to bidder advisors' industry specialization, Table 8 shows many other interesting results. In line with prior research, fees are positively associated with the use of top 8 advisory firms, deal size and tender offer.

**[Insert Table 8 here]**

*4.7. Additional Robustness Checks*

To check whether our results are sensitive to our measurement of industry specialization, we first recompute the ARCA index using the 2-digit SIC codes and the Fama French 12 industry classification, given that investment banks are likely to specialize in relatively broadly defined industries to maintain a stable market presence and to maximize the benefits from economies of scale (Dunbar (2000)). We then

replicate the analysis and find that the results remain essentially unchanged. We perform further robustness checks by remeasuring the ARCA index based on the number of deals advised by a bank in an industry. Compared with the value basis, the number basis may capture the situation where an investment bank has developed industry expertise through processing small but numerous deals (e.g. Balsam, et al. (2003); Benou, Gleason and Madura (2007)). We find the results to be qualitatively the same. Lastly, we change our rolling window to one year and three years, and our results are not sensitive to the choice of the length of the rolling window.

## 5. Conclusion

Inspired by the recent trend of investment banks' industry specialization, this paper examines the impact of advisor industry specialization on deal performance and the level of M&A advisory fees. Using a comprehensive sample of U.S. M&A transactions announced between 1985 and 2010, we show that advisor industry specialization has a significant and positive impact on acquirer CARs, holding all other factors constant. The positive impact of industry specialization is evident in both same- and cross-industry transactions. The value enhancement, however, primarily comes from advisors specializing in the acquirer industry. We also find that specialists have superior ability to reduce the takeover premium and to identify more synergistic targets, especially in mergers. In regard to the pricing of M&A advisory service, industry specialization has a negative and significant impact on advisory fees, a finding that corroborates the cost efficiencies achieved by acquirer advisors through economies of industry specialization. Overall, our results suggest that industry specialization confers a competitive advantage to financial advisors, which enables them to add value to their acquirer clients at a relatively low cost.

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Appendix A Variable Definitions

| Variable | Definition |
|---|---|
| **Panel A: Dependent Variables and Industry Specialization** | |
| CAR (-1, 1) | Cumulative abnormal returns of the acquiring firm stock over the event window (-1, +1) surrounding the announcement date. The return is calculated using the market model with the benchmark being the CRSP value-weighted index. The model parameters are estimated over the (-300, -91) period prior to the announcement. The CAR over the window (-1, +1) is winsorized at 1% and 99% in our analyses. |
| Complete | A dummy variable set equal to 1 if the deal is completed and 0 otherwise. |
| Speed | The time from the deal announcement date to its effective date measured in units of 100 days. |
| Log (Fees) | The natural logarithm of advisory fees paid by the bidding firms (completed deals only) |
| Takeover premium | A percentage premium of offer price over target market value four weeks prior to the deal announcement. |
| Advisor industry specialization | The relative degree of advisors' specialization in the acquirer (target) industry determined by the ARCA measure. It is calculated based on the total value of deals advised by an advisor in the acquirer (target) industry five years prior to the announcement date, where the industry is defined by the 3-digit SIC code. |
| Industry specialist advisor | A dummy variable is equal to 1 if the advisor is classified as a specialist if the ARCA value is greater than zero; and 0 otherwise |
| **Panel B: Deal Characteristics** | |
| Log (Deal Size) | The natural logarithm of the value of the transaction in millions of $US dollars (from Thomson Financial SDC) |
| Relative Size | The deal value divided by the market value of the bidding firm's equity one month prior to the announcement date (from CRSP) |
| Relatedness | A dummy variable setting to 1 if the bidder and the target are operating in the same industries with a common 2-digit SIC code and 0 otherwise (from Thomson Financial SDC). |
| Public Target | A dummy variable being 1 if the bid is for public target and 0 otherwise. |

| | |
|---|---|
| Private Target | A dummy variable being 1 if the bid is for private target and 0 otherwise. |
| Subsidiary Target | A dummy variable being 1 if the bid is for subsidiary target and 0 otherwise. |
| Foreign Target | A dummy variable being 1 if the bid is for foreign target and 0 otherwise. |
| All –Cash Deals | A dummy variable being 1 if the payment is pure cash and 0 otherwise. |
| Pmt. Incl. Stock | A dummy variable being 1 if the payment includes stock and 0 otherwise. |
| Tender Offer | A dummy variable equal to 1 if the deal is a tender offer and 0 otherwise. |
| Hostile | A dummy variable equal to 1 if the deal is classified as 'hostile' by Thompson Financial SDC and 0 otherwise. |
| Acq. Industry M&A (Targ.**Industry M&A)** | A control variable for M&A waves in the industry of the acquirer (target) in the previous year, where industry is classified by 3-digit SIC code. It equals the total value of all M&A transactions reported by SDC for each prior year and 3-digit SIC code over the book value of total assets of all Computstat firms in the same year and 3-digit SIC code. |
| Multiple Bidders | A dummy variable being 1 if there are multiple bidders and 0 otherwise (Kale et al. 2003). |
| Premium Offered | Takeover premium being the difference between the offer price and the target market value 4 weeks prior to the announcement, expressed as a percentage, form SDC. |
| **Panel C: Bidder Characteristics** | |
| Bidder Size | The market value of the bidding firm's equity 1 month prior to the announcement date in millions of $US dollars. The data is obtained from CRSP. |
| Tobin's Q | Market value of assets divided by book value of assets for the fiscal year prior to the acquisition. The market value of assets is equal to book value of assets plus market value of common stock minus book value of common stock minus balance sheet deferred taxes. The data is obtained from both CRSP and Compustat. |
| Run-up | Market-adjusted buy-and-hold returns of the bidder's stock over a 200-day window (-205, -6) from CRSP. |
| Sigma | Standard deviation of the market-adjusted daily returns of the bidder's stock over a 200-day |

| | |
|---|---|
| | window (-205, -6) from CRSP. |
| Leverage | The sum of long-term debt and short-term debt divided by the market value of total assets measured at the end of the fiscal year prior to the acquisition. The data is obtained from both CRSP and Compustat. |
| Free Cash Flow | Operating income before depreciation minus interest expense minus income tax plus changes in deferred taxes and investment tax credits minus dividends on both preferred and common share divided by the book value of total assets at the fiscal year-end before the announcement date from Computstat. |

Table 1

Sample Descriptive Statistics by Type of Advisors

This table reports descriptive statistics of the key variables sorted by the type of advisors. The sample consists of 12,853 deals announced between January 1985 and December 2010, in which there is at least one investment bank advising either the acquirer or the target. The data is drawn from the Thomson Financial SDC database. Panels A to C illustrate the mean, median and number of observations ("N") for each variable for the full sample as well as for bidder advisors with and without acquirer-industry focus. The statistics for bidder advisors with and without target-industry focus are qualitatively similar to the results reported below but omitted for space consideration. Industry specialist advisors are designated using the ARCA measure and based on the value of deals advised by the advisor in the acquirer or target industry over 5 years prior to the announcement date. The industry is defined by 3-digit SIC code. Share price data for the bidding firms is obtained from CRSP while accounting data is downloaded from Computstat. Two-sample Wilcoxon rank-sum test is used to test the significance of differences in means and equality of medians for each variable sorted by the type of financial advisors.

| | Full Sample (1) | | | Industry Specialists (2) | | | Non-industry Specialists (3) | | | Difference (2) – (3) in | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | N | Mean | Median | N | Mean | Median | N | Mean | Median |
| Panel A: Deal Characteristics | | | | | | | | | | | |
| Deal Value (in $mil) | 684.029 | 135.000 | 12852 | 810.984 | 151.828 | 6665 | 614.123 | 140.000 | 5355 | 196.861*** | 11.828*** |
| Relative Size | 0.451 | 0.192 | 9131 | 0.403 | 0.170 | 4936 | 0.467 | 0.218 | 3723 | -0.064*** | -0.048*** |
| Public Targets | 0.365 | - | 12852 | 0.385 | - | 6665 | 0.344 | - | 5355 | 0.041*** | - |
| Private Targets | 0.304 | - | 12852 | 0.310 | - | 6665 | 0.288 | - | 5355 | 0.022*** | - |
| Subsidiary Targets | 0.323 | - | 12852 | 0.297 | - | 6665 | 0.360 | - | 5355 | -0.063*** | - |
| Foreign Targets | 0.142 | - | 12852 | 0.118 | - | 6665 | 0.154 | - | 5355 | -0.035*** | - |
| Relatedness | 0.601 | - | 12852 | 0.613 | - | 6665 | 0.589 | - | 5355 | 0.023*** | - |
| Tender Offer | 0.092 | - | 12852 | 0.082 | - | 6665 | 0.104 | - | 5355 | -0.022*** | - |
| Hostile Deal | 0.018 | - | 12852 | 0.015 | - | 6665 | 0.023 | - | 5355 | -0.008*** | - |
| All-Cash | 0.276 | - | 12852 | 0.262 | - | 6665 | 0.298 | - | 5355 | -0.036*** | - |
| Pmt. include Stock | 0.389 | - | 12852 | 0.434 | - | 6665 | 0.337 | - | 5355 | 0.097*** | - |
| Multiple Bidders | 0.040 | - | 12842 | 0.042 | - | 6661 | 0.041 | - | 5351 | 0.001 | - |
| Acq. Ind. M&A | -2.272 | -2.184 | 12198 | -2.346 | -2.215 | 6393 | -2.194 | -2.119 | 5027 | -0.151*** | -0.096*** |
| Targ. Ind. M&A | -2.169 | -2.155 | 12179 | -2.257 | -2.205 | 6433 | -2.056 | -2.045 | 4963 | -0.201*** | -0.160** |
| Panel B: Bidder Characteristics | | | | | | | | | | | |
| Bidder Size (in $mil) | 6861.037 | 787.534 | 9150 | 7858.925 | 939.825 | 4941 | 6191.661 | 725.170 | 3730 | 1667.264*** | 214.655*** |
| Tobin's Q | 2.436 | 1.534 | 7840 | 2.552 | 1.511 | 4251 | 2.316 | 1.574 | 3199 | 0.236** | -0.063* |
| Run-up | 0.078 | 0.015 | 9201 | 0.086 | 0.021 | 4969 | 0.069 | 0.008 | 3746 | 0.016 | 0.012*** |
| Free Cash Flow | 0.052 | 0.085 | 7812 | 0.049 | 0.077 | 4198 | 0.058 | 0.094 | 3219 | -0.010** | -0.017*** |
| Leverage | 0.147 | 0.104 | 7827 | 0.145 | 0.102 | 4247 | 0.151 | 0.109 | 3194 | -0.006 | -0.006** |
| Sigma | 0.028 | 0.023 | 9202 | 0.028 | 0.023 | 4970 | 0.028 | 0.024 | 3746 | 0.000 | -0.001** |

| Panel C: Dependent Variables | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Premium Offered | 43.30% | 35.28% | 3861 | 43.30% | 35.28% | 2134 | 45.30% | 36.43% | 1513 | -2.00% | -1.16% |
| Advisory Fees (in $mil) | 3.618 | 1.250 | 1886 | 4.180 | 1.500 | 958 | 3.471 | 1.450 | 791 | 0.709** | 0.050 |
| CAR(-1, +1) | 0.003 | 0.000 | 8266 | 0.000 | -0.003 | 4481 | 0.007 | 0.002 | 3367 | -0.007*** | -0.005*** |

Table 2
OLS Regression of Bidder CARs

This table presents results from the OLS regression of the bidder three-day CAR for the full sample as well as the merger and tender subsamples. In each column, the main variable of interest is "Industry Specialist", which is a dummy variable equal to 1 if the bidder advisor specializes in the acquirer and/or the target industry; 0 otherwise. Other variables are defined in Appendix A. The t-statistics statistics in parentheses are adjusted for heteroskedasticity and bidder clustering. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Full | Merger | Tender |
|---|---|---|---|
| | (1) | (2) | (3) |
| Industry Specialist | -0.0019 | -0.0032 | 0.0011 |
| | (-0.8714) | (-1.4575) | (0.2084) |
| Top 8 | 0.0043 | 0.0017 | 0.0064 |
| | (1.6210) | (0.7084) | (1.1833) |
| Ln(Bidder Size) | -0.0027*** | -0.0027*** | -0.0037 |
| | (-3.1212) | (-3.0747) | (-1.5256) |
| Tobin's Q | -0.0014 | -0.0015* | -0.0028 |
| | (-1.5752) | (-1.6796) | (-1.1724) |
| Free Cash Flow | -0.0241** | -0.0274** | 0.0491 |
| | (-2.1600) | (-2.4803) | (1.0175) |
| Leverage | 0.0228** | 0.0170** | -0.0013 |
| | (2.5602) | (2.0201) | (-0.0462) |
| Run-up | -0.0054 | -0.0065* | -0.0212 |
| | (-1.5427) | (-1.8534) | (-1.6119) |
| Sigma | 0.2874** | 0.2986** | 0.2887 |
| | (2.3012) | (2.2974) | (0.7819) |
| Ln (Deal Value) | -0.0012 | 0.0005 | -0.0060** |
| | (-0.9708) | (0.5330) | (-2.2580) |
| Relative Size | 0.0045*** | 0.0042*** | 0.0066 |
| | (3.0203) | (2.6482) | (1.3531) |
| Tender | 0.0104 | | |
| | (1.6346) | | |
| Relatedness | 0.0024 | 0.0040* | -0.0020 |
| | (1.0542) | (1.6825) | (-0.3705) |
| Pub. Targ. * All-Cash | -0.0124*** | -0.0135*** | 0.0070 |
| | (-2.9414) | (-3.6568) | (0.8768) |
| Pub. Targ. * Pmt. incl. Stock | -0.0446*** | -0.0477*** | -0.0096 |
| | (-15.3980) | (-15.8947) | (-0.9235) |
| Priv. Targ. * All-Cash | 0.0001 | -0.0090** | 0.1861*** |
| | (0.0110) | (-2.3073) | (10.7110) |
| Priv. Targ. * Pmt. incl. Stock | -0.0024 | -0.0035 | -0.1135*** |
| | (-0.6365) | (-0.9265) | (-4.5045) |
| Sub. Targ. * All-Cash | 0.0044 | 0.0021 | -0.0047 |
| | (1.2699) | (0.6099) | (-0.2163) |
| Hostile | -0.0212** | -0.0154 | -0.0159* |
| | (-2.4725) | (-1.3748) | (-1.6671) |
| Foreign Target | -0.0041 | -0.0039 | 0.0032 |
| | (-1.3349) | (-1.2177) | (0.4771) |
| Multiple Bidders | 0.0072 | -0.0081 | -0.0020 |
| | (0.7280) | (-1.3173) | (-0.2649) |
| Ln (Acq. Industry M&A) | -0.0011 | -0.0010 | -0.0015 |

| | | | |
|---|---|---|---|
| | (-1.3434) | (-1.1995) | (-0.6455) |
| Ln (Targ. Industry M&A) | 0.0007 | 0.0004 | -0.0011 |
| | (0.9245) | (0.5970) | (-0.5825) |
| Intercept | 0.0717*** | 0.0493*** | 0.1622*** |
| | (3.4974) | (2.5784) | (3.0702) |
| *N* | 6269 | 5668 | 601 |
| $R^2$ | 0.107 | 0.099 | 0.433 |
| Adj. $R^2$ | 0.101 | 0.092 | 0.386 |

Table 3

Two-step Treatment Procedure for Bidder CARs

This table reports the estimation results from a two-step treatment procedure for the bidder CARs for the full sample as well as the merger and tender subsamples. In each model, the first column shows the probit regression results of the first-stage selection equation, where the dependent variable is a dummy variable equal to 1 if a bidder hires an industry specialist advisor, and 0 otherwise. The results for the second-stage equation are shown in the second column for each model, where the dependent variable here is the CAR on the bidder's stock over the event window (-1, +1). The dummy variable 'Industry Specialist' is equal to 1 if the advisor is specializing in either the acquirer or the target industry or both; and 0 otherwise. The variable 'Lambda' is estimated from the first-stage equation and used as an additional regressor in the second-stage equation to adjust for self-selection bias. Other variables are defined in Appendix A. The z-statistics statistics in parentheses are adjusted for heteroskedasticity and bidder clustering. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Full | | Merger | | Tender | |
|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | |
| | Selection | Outcome | Selection | Outcome | Selection | Outcome |
| Industry Specialist | | 0.0806*** | | 0.0657*** | | 0.0930*** |
| | | (7.6599) | | (3.0082) | | (6.0099) |
| Top 8 | | 0.0035 | | 0.0009 | | 0.0069 |
| | | (1.3184) | | (0.3589) | | (1.3642) |
| Num. of Specialists headquartered in Acq. State | 0.0040*** | | 0.0037*** | | -0.0010 | |
| | (4.1888) | | (3.8344) | | (-0.3638) | |
| Ln(Bidder Size) | 0.0742*** | -0.0051*** | 0.0712*** | -0.0047*** | 0.1348*** | -0.0067** |
| | (4.8466) | (-4.8222) | (4.3554) | (-3.9057) | (2.6388) | (-2.2935) |
| Tobin's Q | 0.0059 | -0.0016* | 0.0049 | -0.0017* | -0.0106 | -0.0033 |
| | (0.5877) | (-1.6491) | (0.4788) | (-1.6950) | (-0.2409) | (-1.3233) |
| Free Cash Flow | -0.0382 | -0.0201 | -0.0589 | -0.0236* | -0.5518 | 0.0551 |
| | (-0.2568) | (-1.5177) | (-0.4172) | (-1.8500) | (-0.6111) | (1.0219) |
| Leverage | 0.1578 | 0.0207** | 0.1785 | 0.0149 | -0.7888* | 0.0111 |
| | (1.1302) | (2.1047) | (1.2148) | (1.5441) | (-1.6505) | (0.3462) |
| Run-up | 0.0063 | -0.0060* | -0.0019 | -0.0067* | 0.1569 | -0.0242* |
| | (0.1447) | (-1.6618) | (-0.0432) | (-1.8692) | (0.8341) | (-1.6537) |
| Sigma | -1.8564 | 0.2924** | -2.0047 | 0.2949** | 5.2372 | -0.0177 |
| | (-1.1019) | (2.1766) | (-1.1417) | (2.1584) | (0.7747) | (-0.0427) |
| Ln(DealValue) | -0.0678*** | 0.0007 | -0.0650*** | 0.0020 | -0.0129 | -0.0075** |
| | (-4.0532) | (0.5852) | (-3.7122) | (1.6048) | (-0.2306) | (-2.4048) |
| Relative Size | 0.0153 | 0.0038** | -0.0039 | 0.0040*** | 0.3552*** | 0.0023 |
| | (0.9298) | (2.5341) | (-0.2060) | (2.6424) | (2.7945) | (0.4294) |
| Tender | 0.0570 | 0.0099* | | | | |
| | (0.8883) | (1.6799) | | | | |
| Relatedness | 0.0623 | 0.0004 | 0.0654 | 0.0022 | 0.0648 | -0.0005 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (1.5950) | (0.1662) | (1.6002) | (0.8356) | (0.5451) | (-0.0777) |
| Pub. Targ. * All-Cash | | -0.0118*** | | -0.0128*** | | 0.0059 |
| | | (-2.7902) | | (-3.3923) | | (0.7735) |
| Pub. Targ. * Pmt. incl. Stock | | -0.0521*** | | -0.0538*** | | -0.0165 |
| | | (-15.7628) | | (-14.0594) | | (-1.4837) |
| Priv. Targ. * All-Cash | | 0.0009 | | -0.0081** | | 0.1785*** |
| | | (0.1415) | | (-2.0452) | | (9.7845) |
| Priv. Targ. * Pmt. incl. Stock | | -0.0101** | | -0.0099** | | -0.1260*** |
| | | (-2.4869) | | (-2.2390) | | (-5.0757) |
| Sub. Targ. * All-Cash | | 0.0056 | | 0.0029 | | -0.0042 |
| | | (1.6018) | | (0.8345) | | (-0.1520) |
| Pmt. Incl. stock | 0.2851*** | | 0.2822*** | | 0.2898* | |
| | (7.3437) | | (6.9451) | | (1.7645) | |
| Hostile | -0.1299 | -0.0165* | -0.4821** | -0.0012 | 0.0626 | -0.0185* |
| | (-0.9514) | (-1.8701) | (-2.0663) | (-0.0901) | (0.3307) | (-1.7288) |
| Foreign Target | -0.2189*** | 0.0033 | -0.2432*** | 0.0028 | 0.1677 | 0.0001 |
| | (-4.3485) | (0.9460) | (-4.4791) | (0.6904) | (1.1593) | (0.0153) |
| Multiple Bidders | 0.0862 | 0.0049 | -0.0720 | -0.0055 | 0.0655 | -0.0090 |
| | (0.8622) | (0.5808) | (-0.6286) | (-0.7653) | (0.4428) | (-1.0757) |
| Ln(Acq. Industry M&A) | -0.0197 | -0.0005 | -0.0211 | -0.0006 | -0.0049 | -0.0008 |
| | (-1.4469) | (-0.6139) | (-1.4430) | (-0.6239) | (-0.1189) | (-0.3361) |
| Ln(Targ. Industry M&A) | -0.0167 | 0.0012 | -0.0195 | 0.0009 | -0.0100 | -0.0004 |
| | (-1.3469) | (1.4956) | (-1.4855) | (1.1545) | (-0.2454) | (-0.1681) |
| Lambda | | -0.0512*** | | -0.0426*** | | -0.0563*** |
| | | (-7.4433) | | (-3.0454) | | (-5.5901) |
| Intercept | -0.7012** | 0.0581*** | -0.5742 | 0.0370* | -3.3776*** | 0.2412*** |
| | (-2.1608) | (2.6027) | (-1.6381) | (1.6800) | (-3.3054) | (3.7227) |
| *N* | 6121 | 6121 | 5536 | 5536 | 585 | 585 |

Table 4

Two-step Treatment Procedure for the Cross- versus Same-industry Analysis

This table presents the results from a two-step treatment procedure for the bidder CARs for the sample split by industry relatedness. The corss-industry subsample contains deals in which the acquirer and the taget operate in different industries; the same-industry subsample consists of deals where the acquirer and the target are from the same industry. In each model, the first column shows the probit regression results of the first-stage selection equation, where the dependent variable is a dummy variable equal to 1 if a bidder hires an industry specialist advisor, and 0 otherwise. The results for the second-stage equation are shown in the second column for each model, where the dependent variable here is the CAR on the bidder's stock over the event window (-1, +1). The dummy variable 'Industry Specialist' is equal to 1 if the advisor is specializing in either the acquirer or the target industry or both; and 0 otherwise. The variable 'Lambda' is estimated from the first-stage equation and used as an additional regressor in the second-stage equation to adjust for self-selection bias. Other variables are defined in Appendix A. The z-statistics statistics in parentheses are adjusted for heteroskedasticity and bidder clustering. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Cross Industry Deals | | Same Industry Deals | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | Selection | Outcome | Selection | Outcome |
| Industry Specialist | | 0.0928*** | | 0.0714*** |
| | | (7.1214) | | (3.6947) |
| Top 8 | | 0.0056 | | 0.0008 |
| | | (1.3716) | | (0.2836) |
| Num. of Specialists headquartered in Acq. State | 0.0032** | | 0.0038*** | |
| | (2.1035) | | (3.3898) | |
| Ln(Bidder Size) | 0.0953*** | -0.0062*** | 0.0761*** | -0.0055*** |
| | (4.2042) | (-3.7681) | (3.6832) | (-3.6208) |
| Tobin's Q | 0.0128 | -0.0038*** | 0.0023 | -0.0003 |
| | (0.8276) | (-3.5444) | (0.1731) | (-0.2676) |
| Free Cash Flow | 0.2537 | -0.0363** | -0.1926 | -0.0150 |
| | (1.0962) | (-2.3306) | (-1.0184) | (-0.8235) |
| Leverage | 0.3453 | 0.0119 | 0.0337 | 0.0224* |
| | (1.5716) | (0.7814) | (0.1982) | (1.9333) |
| Run-up | -0.0626 | -0.0034 | 0.0471 | -0.0082* |
| | (-0.9321) | (-0.6793) | (0.8791) | (-1.6676) |
| Sigma | 5.6120** | -0.1427 | -4.8291** | 0.4686*** |
| | (1.9670) | (-0.5750) | (-2.2718) | (2.6971) |
| Ln(DealValue) | -0.0386 | -0.0008 | -0.0824*** | 0.0025 |
| | (-1.4995) | (-0.4676) | (-3.7344) | (1.5303) |
| Relative Size | -0.0064 | 0.0055*** | 0.0519 | 0.0014 |
| | (-0.3833) | (5.2052) | (1.5325) | (0.4243) |
| Tender | -0.0747 | 0.0162** | 0.1149 | 0.0008 |
| | (-0.8018) | (2.2149) | (1.4031) | (0.1504) |

| | | | | |
|---|---|---|---|---|
| Pub. Targ. * All-Cash | | -0.0104* | | -0.0097** |
| | | (-1.7098) | | (-2.3474) |
| Pub. Targ. * Pmt. incl. Stock | | -0.0515*** | | -0.0522*** |
| | | (-8.8606) | | (-12.0960) |
| Priv. Targ. * All-Cash | | 0.0139* | | -0.0112** |
| | | (1.6742) | | (-2.2328) |
| Priv. Targ. * Pmt. incl. Stock | | -0.0111 | | -0.0090* |
| | | (-1.5591) | | (-1.7946) |
| Sub. Targ. * All-Cash | | 0.0072 | | 0.0040 |
| | | (1.2651) | | (0.9296) |
| Pmt. Incl. stock | 0.2003*** | | 0.3133*** | |
| | (3.0217) | | (6.5070) | |
| Hostile | 0.0658 | -0.0311** | -0.0968 | -0.0091 |
| | (0.3056) | (-2.3755) | (-0.5604) | (-0.8747) |
| Foreign Target | -0.1338 | -0.0014 | -0.2661*** | 0.0065 |
| | (-1.6271) | (-0.2489) | (-4.1435) | (1.3798) |
| Multiple Bidders | 0.3838** | 0.0103 | -0.1516 | -0.0008 |
| | (2.3685) | (0.8632) | (-1.4180) | (-0.1183) |
| Ln(Acq. Industry M&A) | -0.0045 | -0.0005 | -0.0166 | -0.0015 |
| | (-0.2526) | (-0.4322) | (-0.6227) | (-0.8906) |
| Ln(Targ. Industry M&A) | 0.0011 | -0.0002 | -0.0251 | 0.0019 |
| | (0.0677) | (-0.1725) | (-1.0030) | (1.1623) |
| Lambda | | -0.0578*** | | -0.0458*** |
| | | (-6.5056) | | (-3.6788) |
| Intercept | -1.5828*** | 0.0912** | -0.4522 | 0.0446* |
| | (-2.9396) | (2.3528) | (-1.1383) | (1.7264) |
| *N* | 2083 | 2083 | 4038 | 4038 |

Table 5

Two-step Treatment Procedure for the Advisor Industry Focus Analysis

This table examines the impact of advisor industry focus on the bidder CARs for the subsample of cross-industry acquisitions where the acquirer and the taget operate in different industries. In each specification, the dependent variable is the bidder CAR (-1, +1). Column (1) reports the first-stage regression results, where the dependent variable is 'Acquirer Advisor Specializing in Acquirer Industry, equal to 1 if an acquirer uses an advisor that is classified as a specialist in the acquirer industry Column (2) presents the results from the second-stage regression of the acquirer 3-day CAR on 'Acquirer Advisor Specializing in Acquirer Industry'. The exclusion restriction employed here is 'Num. of Acq. Advisors Specializing in Acq. Industry headquartered in Acq. Federal State', defined as the number of acquirer-industry specialists in the acquirer's federal state. Columns (3) and (4) replicate the analysis using 'Acquirer Advisor Specializing in Target Industry, which equal to 1 if the acquirer hires an advisor specializing in the target industry; and 0 otherwise. We identify the model using the number of acquirer advisors specializing in target industry that are headquartered in the acquirer's federal state as the exclusion restriction. Other variables are defined in Appendix A. The z-statistics statistics in parentheses are adjusted for heteroskedasticity and bidder clustering. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Cross-industry Deals | | | |
|---|---|---|---|---|
| | (1) Selection | (2) Outcome | (3) Selection | (4) Outcome |
| Acquirer Advisor Specializing in Acquirer Industry | | 0.1114*** | | |
| | | (13.2657) | | |
| Acquirer Advisor Specializing in Target Industry | | | | 0.0160 |
| | | | | (0.8338) |
| Top 8 | | 0.0043 | | 0.0003 |
| | | (0.9975) | | (0.0689) |
| Num. of Acq. Advisors Specializing in Acq. Industry headquartered in Acq. State | 0.0231*** | | | |
| | (3.8325) | | | |
| Num. of Acq. Advisors Specializing in Targ. Industry headquartered headquartered in Acq. State | | | 0.0149** | |
| | | | (2.3056) | |
| Ln(Bidder Size) | 0.1300*** | -0.0060*** | 0.0645** | -0.0047*** |
| | (4.6894) | (-3.0843) | (2.1085) | (-2.6474) |
| Tobin's Q | -0.0001 | -0.0044*** | 0.0262 | -0.0036*** |
| | (-0.0034) | (-2.9941) | (1.4429) | (-2.7217) |
| Free Cash Flow | 0.0953 | -0.0324* | 0.0833 | -0.0389*** |
| | (0.3656) | (-1.8685) | (0.4014) | (-3.0626) |
| Leverage | 0.4061 | -0.0003 | 0.4010 | 0.0076 |
| | (1.4880) | (-0.0149) | (1.3128) | (0.4445) |
| Run-up | -0.0452 | -0.0049 | -0.0470 | -0.0143*** |
| | (-0.4959) | (-0.7236) | (-0.6197) | (-2.8521) |

| | | | | |
|---|---|---|---|---|
| Sigma | -1.0177 | 0.0196 | 7.1385** | 0.3804 |
| | (-0.2627) | (0.0657) | (2.1118) | (1.4223) |
| Ln(DealValue) | -0.0683** | -0.0012 | -0.0014 | 0.0021 |
| | (-2.2242) | (-0.5623) | (-0.0397) | (1.0376) |
| Relative Size | -0.0104 | 0.0043** | 0.0150 | 0.0036** |
| | (-0.4921) | (2.4345) | (0.7355) | (2.3015) |
| Tender | -0.0841 | 0.0173** | -0.1084 | 0.0027 |
| | (-0.7900) | (2.2440) | (-0.7908) | (0.4225) |
| Pub. Targ. * All-Cash | | -0.0141** | | -0.0075 |
| | | (-2.0362) | | (-1.1772) |
| Pub. Targ. * Pmt. incl. Stock | | -0.0504*** | | -0.0530*** |
| | | (-7.2968) | | (-7.1220) |
| Priv. Targ. * All-Cash | | 0.0051 | | 0.0035 |
| | | (0.6436) | | (0.3998) |
| Priv. Targ. * Pmt. incl. Stock | | -0.0019 | | -0.0109 |
| | | (-0.2244) | | (-1.1528) |
| Sub. Targ. * All-Cash | | 0.0028 | | 0.0038 |
| | | (0.5025) | | (0.5346) |
| Pmt. Incl. stock | 0.1493* | | 0.0889 | |
| | (1.8697) | | (0.9226) | |
| Hostile | 0.1026 | -0.0281 | 0.0360 | -0.0268* |
| | (0.3922) | (-1.5796) | (0.1019) | (-1.7881) |
| ForeignTarg. | -0.2272** | -0.0033 | 0.0494 | 0.0007 |
| | (-2.2054) | (-0.4710) | (0.4532) | (0.1188) |
| Multiple Bidders | 0.2871* | 0.0210* | 0.2216 | 0.0022 |
| | (1.8007) | (1.8853) | (1.0524) | (0.2238) |
| Ln(Acq. Industry M&A) | -0.0069 | -0.0003 | -0.0101 | -0.0003 |
| | (-0.3114) | (-0.1833) | (-0.4020) | (-0.1953) |
| Ln(Targ. Industry M&A) | -0.0122 | 0.0007 | -0.0074 | -0.0005 |
| | (-0.6759) | (0.5594) | (-0.3514) | (-0.4634) |
| Lamda | | -0.0690*** | | -0.0060 |
| | | (-11.7510) | | (-0.5649) |
| Intercept | -2.0808*** | 0.1127** | -2.2148*** | 0.0489 |
| | (-3.0693) | (2.3212) | (-3.0431) | (1.1842) |
| *N* | 1434 | 1434 | 1269 | 1269 |

Table 6

Two-step Treatment Regression for Takeover Premiums

This table reports the results from a two-step treatment procedure for takeover premium for the public deals in the full sample as well as the merger and tender offer subsamples. Takeover premium is computed as a percentage premium of offer price over target market value 4 weeks prior to the deal announcement. Ln(Targ. M/B) is the natural logarithm of a ratio of the market value of equity relative to the book value of equity of target for the prior fiscal year, where the market value of target equity is calculated as one month before the announcement date. A bidder (target) advisor's industry specialization is measured using the ARCA method which is based on the value of deals advised by the bank in either the acquirer's industry (acquirer-industry focus) or the target firm's industry (target-industry focus) 5 years prior to the announcement date. Industry is classified by 3 digit SIC code. A cut-off of zero ARCA value is used to classify an advisor as industry specialist. In each specification, the first-stage model estimates the probability that a bidder hires an industry specialist advisor. In the second-stage regression of premium, the model is augmented by 'Lambda', which is obtained from the first-stage regression and included to adjust for self-selection bias. Other variables are defined in Appendix A. The z-statistics in parentheses are adjusted for heteroskedasticity and bidder clustering. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Full | | Merger | | Tender | |
|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | |
| | Selection | Outcome | Selection | Outcome | Selection | Outcome |
| Industry Specialist Hired by Acquirer | | -38.9694*** | | -36.3087*** | | 5.2522 |
| | | (-5.1896) | | (-4.5552) | | (0.3734) |
| Industry Specialist Hired by Target | | -7.7277*** | | -8.6267*** | | -4.9924 |
| | | (-3.5823) | | (-3.8022) | | (-0.8098) |
| Top 8 Advisor Hired by Acquirer | | -3.1644 | | -3.1131 | | 1.8840 |
| | | (-1.2737) | | (-1.1414) | | (0.2536) |
| Top 8 Advisor Hired by Target | | 0.6863 | | -0.0981 | | 10.2266 |
| | | (0.2776) | | (-0.0347) | | (1.5169) |
| All Cash | | -5.8196 | | -1.5608 | | -10.5508 |
| | | (-1.5822) | | (-0.3898) | | (-1.4853) |
| Toehold | | -24.4291* | | -14.4859 | | -38.1018 |
| | | (-1.6885) | | (-0.6816) | | (-1.2361) |
| Num. of Specialists headquartered in Acq. State | -0.0010 | | -0.0033 | | -0.0060 | |
| | (-0.4299) | | (-1.3694) | | (-0.6231) | |
| Prior Use of Specialist | 0.2377** | | 0.2109* | | 0.9149** | |
| | (2.2448) | | (1.8489) | | (2.4302) | |
| Ln(Deal Value) | 0.1042 | -2.3218 | 0.1552* | 0.1517 | 0.0009 | -18.4472*** |
| | (1.3856) | (-1.1622) | (1.8323) | (0.0692) | (0.0034) | (-3.8094) |
| Relative Size | -0.5160** | -8.4383 | -0.6710*** | -12.5570** | -0.0054 | 15.4450 |
| | (-2.4429) | (-1.6202) | (-2.6752) | (-2.1256) | (-0.0088) | (1.4829) |
| Tender | 0.2979* | 13.5227*** | | | | |
| | (1.8506) | (3.5131) | | | | |
| Relatedness | 0.0472 | 0.3647 | 0.0591 | -0.0862 | -0.0539 | 10.7968 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.3913) | (0.1313) | (0.4412) | (-0.0292) | (-0.1554) | (1.5673) |
| Foreign Target | -0.1887 | 15.5875 | 0.8702 | 28.3439 | -6.4821 | 17.7007 |
| | (-0.3410) | (0.9594) | (1.1699) | (1.3257) | (-0.0102) | (0.8496) |
| Hostile | -0.4227 | -3.9746 | -1.1580** | -5.7209 | -0.1188 | 0.6814 |
| | (-1.3517) | (-0.5589) | (-1.9723) | (-0.4272) | (-0.2007) | (0.0660) |
| Multiple Bidders | -0.0461 | 4.6700 | -0.1784 | 5.2014 | 1.4923** | -0.5030 |
| | (-0.2269) | (1.2394) | (-0.7183) | (1.2805) | (2.5108) | (-0.0731) |
| Pmt. Incl. stock | 0.4068*** | | 0.2761** | | 1.2377** | |
| | (3.5367) | | (2.1189) | | (2.1947) | |
| Ln (Targ. M/B) | | -6.7840*** | | -6.8332*** | | -6.1575* |
| | | (-4.0272) | | (-3.3384) | | (-1.6937) |
| Ln(Bidder Size) | -0.1736** | 2.1818 | -0.2195*** | 0.0682 | 0.2462 | 14.3982*** |
| | (-2.4217) | (1.0804) | (-2.5845) | (0.0302) | (1.0101) | (3.5263) |
| Tobin's Q | 0.0630*** | 2.6801*** | 0.0741*** | 2.5917*** | -0.2367* | 1.0793 |
| | (3.0628) | (5.6539) | (2.9895) | (5.2977) | (-1.7437) | (0.4992) |
| Free Cash Flow | 0.2126 | | 0.0469 | | -1.3814 | |
| | (0.4567) | | (0.1024) | | (-0.5683) | |
| Leverage | 0.6518* | | 1.0719** | | -1.6331 | |
| | (1.7218) | | (2.5088) | | (-1.0548) | |
| Run-up | -0.2333*** | | -0.2616*** | | 0.9473 | |
| | (-2.8404) | | (-2.8041) | | (1.2836) | |
| Sigma | -9.6459** | | -9.1346* | | 59.6279* | |
| | (-2.0446) | | (-1.7779) | | (1.9479) | |
| Ln(Acq. Industry M&A) | -0.0943** | | -0.0601 | | -0.0845 | |
| | (-2.2795) | | (-1.3418) | | (-0.4318) | |
| Ln(Targ. Industry M&A) | 0.0390 | | 0.0117 | | 0.2327 | |
| | (1.0334) | | (0.2622) | | (1.5739) | |
| Lambda | | 23.6739*** | | 22.4275*** | | -8.2227 |
| | | (4.8495) | | (4.3812) | | (-0.9027) |
| Intercept | 1.8349* | 147.2346*** | 1.9487* | 148.6506*** | 0.0418 | 117.8015** |
| | (1.7385) | (5.4208) | (1.6932) | (5.1177) | (0.0001) | (1.9887) |
| *N* | 733 | 733 | 611 | 611 | 122 | 122 |

Table 7

Two-step Treatment Procedure for Total Synergies

This table reports the results from the two-step treatment procedure for total synergies for public acquisitions in the full sample as well as the merger and tender offer subsamples. Total synergy is computed as the sum of the dollar gain of the acquirer and the target, with dollar gain a product of CAR (-1, +1) and the respective firms' market capitalization 4 weeks before the announcement. Advisor industry specialization is measured using the ARCA method based on the value of deals advised by the bank in an industry 5 years prior to the announcement date. Industry is classified by 3 digit SIC code. A cut-off of zero ARCA value is used to classify an advisor as industry specialist. In each specification, the first-stage model estimates the probability that a bidder hires an industry specialist advisor. In the second-stage regression of total synergies, the model is augmented by 'Lambda', which is obtained from the first-stage regression and included to adjust for self-selection bias. Other variables are defined in Appendix A. The z-statistics statistics are shown in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Full | | Merger | | Tender | |
|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | |
| | Selection | Outcome | Selection | Outcome | Selection | Outcome |
| Industry Specialist | | 1817.9321*** | | 1744.8767* | | 674.2106 |
| | | (2.6442) | | (1.7138) | | (0.6836) |
| Top 8 | | 0.8733 | | -124.1297 | | 775.6073*** |
| | | (0.0054) | | (-0.8854) | | (3.6067) |
| Num. of Specialists headquartered in Acq. State | -0.0033* | | -0.0031 | | -0.0017 | |
| | (-1.6509) | | (-1.2829) | | (-0.2485) | |
| Prior Use of Specialist | 0.2206** | | 0.2232** | | 0.6556** | |
| | (2.2260) | | (1.9614) | | (2.3224) | |
| Ln(Bidder Size) | 0.0326 | -22.9939 | -0.0304 | -24.3625 | 0.0670 | -75.2818 |
| | (0.7361) | (-0.3537) | (-0.6271) | (-0.4645) | (0.5225) | (-0.9381) |
| Tobin's Q | 0.0797 | -58.8830 | 0.0929*** | -60.0389* | -0.0398 | -84.0188 |
| | (1.6371) | (-0.7313) | (2.8409) | (-1.7372) | (-0.4078) | (-1.0968) |
| Free Cash Flow | -0.0068 | 10.0761 | 0.0025 | 153.2678 | 0.9093 | -1048.6916 |
| | (-0.0145) | (0.0190) | (0.0052) | (0.2453) | (0.4516) | (-0.6197) |
| Leverage | 0.7044* | -95.0354 | 1.0416** | -153.0879 | -0.8157 | 251.4193 |
| | (1.8685) | (-0.2140) | (2.4143) | (-0.2369) | (-0.6613) | (0.2365) |
| Run-up | -0.0664 | -239.7817 | -0.0319 | -326.0531** | 0.3078 | 574.8819 |
| | (-0.5572) | (-0.9380) | (-0.2673) | (-2.0036) | (0.5687) | (1.4402) |
| Sigma | -6.2598 | 8490.4988 | -8.2978 | 10362.8091 | 33.2936 | 5563.3676 |
| | (-1.3037) | (1.2162) | (-1.5382) | (1.2840) | (1.6284) | (0.3553) |
| Ln(DealValue) | -0.0741* | | -0.0359 | | 0.0354 | |
| | (-1.8026) | | (-0.7349) | | (0.2549) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Relative Size | 0.1278** | -70.3754 | 0.1097 | -169.4336* | 0.0833 | -25.8975 |
| | (2.3126) | (-1.4622) | (1.2239) | (-1.6537) | (0.2076) | (-0.3514) |
| Tender | 0.2553* | -185.0464 | | | | |
| | (1.8541) | (-0.9481) | | | | |
| Relatedness | 0.0471 | 91.7032 | -0.0343 | 37.9542 | -0.1849 | 516.4847** |
| | (0.4221) | (0.6355) | (-0.2961) | (0.2364) | (-0.6438) | (2.2580) |
| Pmt. incl. Stock | 0.3364*** | -429.0886** | 0.2019 | -552.3631*** | 0.5393 | 293.3865 |
| | (2.9477) | (-2.5462) | (1.4753) | (-2.6594) | (1.3733) | (0.8624) |
| Hostile | -0.1392 | 890.5272** | -0.9021* | 989.1822 | 0.0644 | 701.2312* |
| | (-0.4710) | (2.1273) | (-1.7282) | (1.2598) | (0.1267) | (1.7879) |
| Foreign Target | -0.2436 | 540.0440 | -0.3771 | 190.0547 | -0.4798 | 740.6018* |
| | (-0.8515) | (1.2178) | (-1.0625) | (0.3388) | (-0.9038) | (1.6935) |
| Multiple Bidders | 0.0165 | -276.9945 | -0.3245 | -346.0265 | 0.9630** | -456.8561 |
| | (0.0982) | (-1.1828) | (-1.5065) | (-1.0131) | (2.3276) | (-1.1370) |
| Ln(Acq. Industry M&A) | -0.0453 | | -0.0658 | | 0.0081 | |
| | (-1.2584) | | (-1.5232) | | (0.0540) | |
| Ln(Targ. Industry M&A) | -0.0144 | | -0.0308 | | -0.0304 | |
| | (-0.4952) | | (-0.7658) | | (-0.3072) | |
| Lambda | | -1119.6300** | | -1070.9662* | | -529.6053 |
| | | (-2.3390) | | (-1.7356) | | (-0.8815) |
| Intercept | 0.5230 | -461.6415 | 1.0612 | -170.0446 | -2.1513 | 697.9046 |
| | (0.5453) | (-0.2952) | (1.1652) | (-0.1098) | (-0.7962) | (0.3678) |
| *N* | 940 | 940 | 774 | 774 | 166 | 166 |

Table 8

A Two-step Treatment Procedure for Advisory Fee

This table reports the estimation results of a two-step treatment procedure for the advisory fee paid by acquirers for the full sample and the merger subsample. We omit the tender subsample analysis due to the relatively small sample size (66 observations) which makes it difficult to get reliable estimates using a two-step estimation procedure. In each model, the first column estimates the probit regression results of the first-stage selection equation, where the dependent variable is a dummy variable equal to 1 if a bidder hires an industry specialist advisor and 0 otherwise. The results for the second-stage equation are shown in the second column for each model, where the dependent variable here is the natural logarithm of advisory fees paid by the bidder. The dummy variable 'Industry Specialist' is equal to 1 if the advisor is specializing in either the acquirer or the target industry or both; and 0 otherwise. The variable 'Lambda' is estimated from the first-stage equation and used as an additional regressor in the second-stage equation to adjust for self-selection bias. In both first- and second-stage regressions, we exclude the variable " Foreign Targ." since only 24 cross-border transactions have fee information available. Including this variable does not change the results. Other variables are defined in Appendix A. The z-statistics statistics in parentheses are adjusted for heteroskedasticity and bidder clustering. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. N denotes the number of observations.

| | Full | | Merger | |
|---|---|---|---|---|
| | (1) | | (2) | |
| | Selection | Outcome | Selection | Outcome |
| Industry Specialist | | -0.6509*** | | -0.7182*** |
| | | (-4.1566) | | (-5.8691) |
| Top 8 | | 0.1606*** | | 0.1769*** |
| | | (3.4352) | | (3.3704) |
| Num. of Specialists headquartered in Acq. State | 0.0005 | | 0.0015 | |
| | (0.1727) | | (0.5485) | |
| Prior Use of Specialist | 0.4803*** | | 0.3616*** | |
| | (3.5590) | | (2.9619) | |
| Ln(Deal Value) | 0.0604 | -0.1619*** | 0.0801 | -0.1541*** |
| | (0.6256) | (-6.9212) | (0.6202) | (-6.1464) |
| Pmt. Include Stock | 0.1849 | 0.0883 | 1.1460* | 0.4013 |
| | (0.5053) | (0.7023) | (1.9181) | (1.4239) |
| Relative Size | -0.0079 | 0.0171 | -0.1258 | 0.0380 |
| | (-0.0690) | (0.8114) | (-1.0048) | (0.9835) |
| Tender | -0.0374 | 0.2786** | | |
| | (-0.1058) | (2.3043) | | |
| Relatedness | 0.0644 | -0.0588 | 0.1263 | -0.0099 |
| | (0.3973) | (-0.8779) | (0.6592) | (-0.1305) |
| Hostile | -0.2487 | -0.1302 | -0.9755 | -0.1903 |
| | (-0.6408) | (-1.0237) | (-1.5354) | (-0.9496) |
| Multiple Bidders | -0.0087 | 0.0593 | -0.0322 | 0.0471 |
| | (-0.0296) | (0.5736) | (-0.0878) | (0.2934) |
| Sigma | -10.2845 | 3.9765 | -6.3915 | 4.0537 |

| | | | | |
|---|---|---|---|---|
| | (-1.2572) | (1.2608) | (-0.7692) | (1.2270) |
| Ln(Bidder Size) | -0.1691* | | -0.1699 | |
| | (-1.7087) | | (-1.2846) | |
| Tobin's Q | -0.0363 | | -0.0283 | |
| | (-1.4928) | | (-1.2302) | |
| Run-up | 0.3782** | | 0.4094*** | |
| | (2.4960) | | (2.9967) | |
| Free Cash Flow | 0.8456 | | 1.2295** | |
| | (1.4073) | | (2.3111) | |
| Leverage | -0.4002 | | 0.3260 | |
| | (-0.6228) | | (0.5317) | |
| Ln(Acq. Industry M&A) | -0.0456 | | -0.1183** | |
| | (-0.8432) | | (-2.3099) | |
| Ln(Targ. Industry M&A) | -0.0150 | | -0.0078 | |
| | (-0.3059) | | (-0.1550) | |
| Lambda | | 0.4010*** | | 0.4484*** |
| | | (3.8368) | | (5.2429) |
| Intercept | 3.3908** | 4.1876*** | 2.0091 | 3.7864*** |
| | (2.2653) | (6.6672) | (1.4788) | (6.5500) |
| N | 390 | 390 | 323 | 323 |