IN-HOUSE DEALS: AGENCY AND INFORMATION ASYMMETRY PERSPECTIVES

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Abstract

Mergers and Acquisitions (M&A) advisors add value by overcoming the information asymmetries between acquirers and targets, but may also push bad deals through due to incentive misalignment stemming from contingent fees. In-house deals are those acquisitions with in-house advisors. We examine the wealth effect of M&A deals advised by in-house advisors versus outside advisors. About 15% of acquisitions are done via in-house advisors. In-house deals result in higher CARs to targets, insignificant wealth effects to acquirers, but lower cumulative abnormal combined returns. This finding is consistent with the view that the information asymmetry problem is more severe than the agency conflict in non-financial acquisitions. Thus, targets are more likely to extract wealth away from the acquirers, or the overall deal quality is lower. Also, consistent with the view that investment banks have an incentive to see deals completed, the completion rate is higher for deals with an outside advisor.

Keywords: In-house Deals, Mergers and Acquisitions (M&As) Advisors, Information Asymmetry, Incentive Misalignment

1. INTRODUCTION

Financial advisors are important participants in the merger and acquisition market. They are specialists in information gathering and processing; in addition, they provide negotiation advice and financing arrangement for their clients. Thus, they benefit the merging firms by reducing the information asymmetry between acquirers and targets. However, financial advisors also have an incentive to see deals come to completion since a significant portion of the advisory fee is contingent on the deal outcome (Du &

Huang, 2015; Lowry, Rossi, & Zhu, 2019; McLaughlin, 1990, 1992; Rau, 2000; Servaes & Zenner, 1996). Since the two conflicting effects take place at the same time, previous studies have not successfully provided direct evidence of which of the two competing effects is more important or whether financial advisors are, overall, beneficial or costly.[1]

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[1] Servaes and Zenner (1996) directly study the role of investment banks in acquisitions during 1981 to 1992 and find acquirer returns for deals with investment banks are lower in the univariate tests. However, the difference can be explained by deal characteristics in the regression analysis. Other studies that analyze the conflict of interests mainly focus on the relative

In this study, we examine the similarities and differences in acquirer financial advisors that are retained in-house versus hired from outside.[2] Consistent with Servaes and Zenner (1996), the regression results show that acquisitions with hired advisors do not result in higher acquirer cumulative abnormal returns. However, they are with higher combined cumulative abnormal returns and lower target gains. This is consistent with the view that the information asymmetry between targets and acquirers is the primary concern rather than the principle-agent problem in non-financial acquisitions.

In our analysis, we examine what types of deals are more likely to use in-house advisors. In-house deals are closely related to smaller deal sizes, as well as greater prior M&A experience. Interestingly, acquirers are more likely to hire professional advisors when the merging firms are out-of-state. The evidence is consistent with the view that non-financial firms depend more on investment banks when the information asymmetry between the target and the acquirer becomes severer when merging firms get farther from each other, and acquirers are willing to bear the cost imposed by the principle-agent problem.

Further, we examine the impact of in-house advisors versus hired advisors on the outcomes of deals, such as completion rate and merger gains. We find that hired advisors have significantly higher completion rates than in-house deals, and this finding is consistent with the view that financial advisors have a great incentive for deal completion. We control for the sample self-selection bias of financial advisors using the two-stage procedure of the treatment model. The coefficient of the in-house deals is 15.6% higher for the target return regressions but 6.4% lower for regression of combined merger gains.

Overall, this study shows that the impact of financial advisors yields an answer of more than one dimension. The key market imperfection that needs to be reduced is the information asymmetry between merging firms. Therefore, deals with hired advisors are beneficial because advisors help prevent targets from extracting values (wealth redistribution) as well as identify better matches (allocation efficiency).

The remainder of the paper proceeds as follows. Section 2 provides an overview of financial advisors and develops the hypotheses/predictions. Section 3 describes the sample selection process and presents univariate evidence on the impact of financial advisors. Section 4 presents the main empirical evidence and the interpretation of financial advisor choice, completion rate, and the merger gains. Section 5 concludes.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Information is a vital driver of the financial market, and financial institutions are believed to be efficient users and providers of public/private information and have superior ability to process information (Anderson & Huang, 2017; Chang, Shekhar, Tam, & Yao, 2016; Ma, Dewally, & Huang, 2017). Being intermediaries between merging firms, financial advisors provide unique expertise to smooth financial transactions. Acquirer financial advisors are information collectors and producers; their service includes analyzing potential merger plans for their clients, providing fairness opinions or giving suggestions on the valuation of the target, offering negotiation strategies, and arranging financing for the acquirers. However, previous literature on the role of financial advisors seems non-conclusive, especially when comparing deals with and without financial advisors: on the one hand, advisors may possess skills and deliver value for certain types of deals when there are enough incentives (Golubov, Petmezas, & Travlos, 2012; Chang et al., 2016; Derrien & Dessaint, 2018); on the other hand, acquirers do not seem to benefit from the advisory service provided by investment banks after controlling for the deal characteristics (Servaes & Zenner, 1996).

One explanation of this puzzle might be the agency cost of hiring acquirer advisors caused by the potential conflict of interests between acquirers and their advisors. Since investment banks provide the special services in exchange for the monetary compensation, and more importantly, McLaughlin (1990, 1992) examines the advisory fee structure and finds that a large portion of the fee is contingent on the deal completion, and the fee amount is positively related to the transaction value. Hunter and Jagtiani (2003) report that the magnitude of the acquirer advisor fee is 2.4 million (or 0.84% of the transaction value) on average. Thus, the acquirer's adviser has a great incentive to push the deal to completion but has less intention to negotiate a lower offer price for the acquirer. Since incentives are not aligned, the financial acquirer might be costly to the acquirer.

Prior studies also find that the reputation of an advisor might be a natural mechanism to mitigate the conflict of interests. Due to the competitiveness of the M&A advisory market, investment banks would not ruin their reputation by extracting much value from the acquirers.[3] Supportive of this view, some studies find that top-tier financial advisors improve their clients' shareholder wealth more than lower-tier investment banks (Kale, Kini, & Ryan, 2003; Chemmanur, Ertugrul, & Krishnan, 2019).[4] Most of these studies use the market share of the advisory service as a proxy of advisory reputation. However, Rau (2000) shows that the market share of investment banks is positively related to the contingent fee payments charged by the bank and to the percentage of deals completed in the past by the bank, but is unrelated to the performance of the acquirers advised by the bank in the past. Bao and

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evidence by comparing acquisitions completed by top-tier advisors and lower-tier advisors (Kale, Kini, & Ryan, 2003; Rau, 2000).
[2] The study focuses on the acquirer financial advisors but not the target financial advisors for two reasons. First, the conflict of interests between the acquirer and the advisors is more pronouncing than the target side. Because the advisory fee is contingent on deal completion and a large portion of the fee is proportional to the transaction value (McLaughlin, 1990, 1992), the acquirer's advisor prefers a higher offer price to lock the deal whereas the acquirer is willing to pay less. On the target side, however, both the advisor and the target are willing to accept a higher offer price, thus their incentives are aligned. Second, in the financial acquisitions in our sample, the sample size of deals with in-house target advisors is limited.

[3] The competition and incentives available in the financial/product market may alter the behavior of financial institutions as well as high-level executives (Du, Huang, & Jain, 2019; Huang, Jain, & Shao, 2019).
[4] Kale et al. (2003) find that the absolute shareholder wealth gain as well as the total wealth gain accruing to the bidder (target) increase (decrease) as the reputation of the bidder's advisor increases relative to that of the target.

Edmans (2011) also find that using market share to measure advisory reputation might further drive investment banks to bid up offer prices to lock up a deal or even to promote value-destroying deals to their clients to build a higher market share. Other proxies might be problematic too. For example, the average announcement return of previous merger transactions advised by a financial advisor might indicate the average performance of M&A service over time. However, many of the financial advisors specialize in particular industries, such as hi-tech, telecommunication, or pharmaceutical. Comparing average merger gains of advisor performances may only reveal the difference in their primary business focuses.

Overall, prior literature has not reached a consistent view of the value-increasing role of financial advisors. So, if a financial advisor is not beneficial to their clients on average, why do they involve them in the majority of the M&A deals? Does the role of financial advisors depend on more complicated circumstances or vary conditionally on the merger environment? In this study, we disentangle and examine how financial advisors affect M&A transactions.

To study the role of financial advisors, we need to identify whether the benefit brought by an advisor is greater than the agency costs, or vice versa. Presumably, acquisitions without hired advisors (in-house) are free of the principle-agent problem. However, the in-house deals on average suffer from the information asymmetry between targets and acquirers, because acquirers lack professional information or relevant experience compared to investment banks. Thus, by comparing the deals completed with or without a hired advisor, we can find the primary role of hired advisors. If transactions served by investment banks benefit acquirers more, then the information asymmetry between targets and acquirers dominates the principle-agent problem. However, if the in-house deals consist of better merger gains, then the principle-agent problem dominates the information asymmetry. Thus, the key hypothesis is that: the net impact of financial advisors should be aligned with the key market imperfection in the M&A market, either the information asymmetry or the principle-agent problem.

Acquirers, who are not in the financial industry, are "outsiders" of the M&A market as they usually do not have a standalone investment banking department. Thus, they highly depend on the information provided by financial advisors to better process and value targets, to negotiate with the counterparty on the proper offer price, or even ask for financial assistance. Therefore, although acquirers might be concerned about the potential conflict of interests, the synergy created by hiring financial advisors should overcome the drawbacks. Thus, the first prediction is:

Prediction 1 (P1): In the M&A market, the magnitude of the information asymmetry between merging firms is larger than the agency cost, thus, deals with hired advisors should result in higher merger gains than in-house advised deals controlling the deal characteristics.

Deal completion rate is another measure of the performance of financial advisors (Rau, 2000). Given the argument that financial advisors are driven by the deal completion incentive, a higher completion rate should be associated with deals with hired advisors. Thus, the deal completion prediction is:

Prediction 2 (P2): The higher completion rate of mergers is associated with deals advised by professional advisors due to the deal completion incentive.

This study adds to the literature by providing more comprehensive insight into the role of financial advisors rather than simply defining it as a good or bad choice. Similar to any type of agent, financial advisors can bring value to their clients as well as take advantage of them. As such, this study is not only connected to the financial advisor literature in the M&A market but also many studies in other areas, such as the real estate market and IPO market.[5]

3. RESEARCH METHODOLOGY

3.1. Data sources

The data collection process begins with the SDC M&A database. The initial sample includes all mergers and acquisitions by non-financial firms, announced from 1994 to 2008, with both merging firms publicly listed in the U.S.[6] In addition, we impose these filters: 1) the acquirer must hold less than 50% toehold of the target shares before the takeover; 2) if the deal is completed, the transaction must result in the acquirer owning 100% of the target; 3) the transaction value and the offer price of the deal must be disclosed in the SDC database; 4) following the traditional M&A literature, we exclude deals of self-tender or repurchase, bankrupt target, or failed bank merger; 5) we also exclude tender offers without financial advisors' identity information disclosed by SDC;[7] 6) both the target and the acquirer must have stock return information available from the CRSP database; and 7) deals with targets' stock prices of five dollars or less are not included, effectively excluding highly distressed target firms. The final sample contains 1,709 takeovers.

Next, we extract the following deal characteristics from the SDC: 1) the announcement, withdrawal, and completion dates of a takeover; 2) the names and CUSIP numbers of the target and the acquirer; 3) the outcome of the transaction; 4) names of acquirer financial advisors; 5) the method of payment; 6) the deal value and the offer price of the transaction; 7) the geographic locations (state and city) of the target and the acquirer; 8) the toehold portion held by the acquirer at the announcement; 9) the number of competing

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bidders; and 10) the takeover-related transactions completed by the acquirer ten years prior to the current transaction. Finally, we collect stock price data from CRSP and firm-level accounting information from Compustat.

3.2. Financial advisors

The main explanatory variable is the identity of the acquirer advisor: whether the acquirer hires an outside M&A advisor or completes the transaction with an in-house resource. To identify in-house transactions, we manually compare the advisor's name (or the advisor's parent company's name) with the client's name (or the name of the parent of the client). When an acquirer retains outside M&A advisors, we include it in the hired advisor group. If one of the advisors' names matches the name of the acquirer, the subsidiary of the acquirer, or the acquirer does not retain any financial advisor, the transaction belongs to the in-house group.

Table 1, Panel A presents the sample summary of the hired advisor group versus the in-house group. 254 out of 1,709 (14.86%) acquirers retain in-house advisors. This finding is not surprising in that acquirers are less likely to have experience or specialty in the M&A market. Thus they rely more on opinions from professional M&A advisors.

Table 1. In-house advisers vs. hired advisers

Panel A: Frequency of acquisitions advised by in-house advisers vs. hired advisers		
	No. of deals	**% deals**
Hired advisor	1,455	85.14%
In-house advisor	254	14.86%
Total number	1,709	100%

Panel B: Top 10 non-financial acquisitions advised by in-house advisers vs. hired advisers								
	In-house adviser				**Hired adviser**			
	Acquirer	*Target*	*Year*	*Transaction value (mil)*	*Acquirer*	*Target*	*Year*	*Transaction value (mil)*
1.	Oracle Corp.	BEA Systems Inc.	2007	8,056.05	America Online Inc.	Time Warner	2000*	164,746.90
2.	USA Interactive	Expedia Inc.	2002	3,636.37	Pfizer Inc.	Warner-Lambert Co.	1999	89,167.72
3.	Illinois Tool Works Inc.	Premark International Inc.	1999	3,619.59	Exxon Corp.	Mobil Corp	1998	78,945.79
4.	Lucent Technologies Inc.	International Network Services	1999	3,284.04	AT&T Inc.	BellSouth Corp.	2006	72,671.00
5.	Lucent Technologies Inc.	Ortel Corp.	2000	2,797.53	SBC Communications	Ameritech Corp.	1998	62,592.54
6.	L-3 Communications Holding	Titan Corp.	2005	2,765.91	Pfizer Inc.	Pharmacia Corp.	2002	59,515.02
7.	WorldCom Inc.	Brooks Fiber Properties	1997	2,532.63	Qwest Commun Intl	US WEST ink	1999	56,307.03
8.	Johnson & Johnson	Scios Inc.	2003	2,323.21	Procter & Gamble Co.	Gillette Co.	2005	54,906.81
9	Intel Corp.	Level One Communications Inc.	1999	2,272.70	Bell Atlantic Corp.	GTE Corp.	1998	53,414.58
10.	General Dynamics Corp.	Anteon International Corp.	2005	2,176.01	AT&T Corp.	MediaOne Group Inc.	1999	49,278.87

*Note: * indicates the deal is a merger of equal. Dollar value is measured in millions. The sample includes all mergers and acquisitions from the SDC M&A database by non-financial firms, announced from 1994 to 2008, with both merging firms publicly listed in the U.S.*

Table 1, Panel B provides the detailed information of the merging firms and deal values of the top 10 transactions in both the hired advisor sample (investment bank) and the in-house group, ranked by the size of the deal. Consistent with Servaes and Zenner (1996), the choice of either retaining an in-house advisor or hiring an investment bank advisor highly depends on the deal size and deal complexity. On average, the top 10 in-house mergers are much smaller in transaction value than the investment-bank served mergers. For example, the largest investment bank served deal (the merger of America Online and Time Warner) is about 20 times the largest in-house deal (the merger of Oracle and BEA System).

3.3. Deal completion rate

The deal outcome is the completion rate of merger transactions. The completion rate is significantly higher in the investment bank group (88.24%) than in the in-house group (77.56%).

3.4. Measures of merger gains

We measure merger gains based on short-term market reactions. The CARs for both targets (TCAR) and acquirers (ACAR) are cumulative abnormal returns around takeover announcements. The daily abnormal return is the difference between the firm's daily raw return and the expected return. We use the market risk-adjusted model estimated over the [-250, -31] trading days before the announcement day to measure the expected returns. We then sum up the abnormal returns over multiple event-day windows to measure the cumulative market reaction. The combined cumulative abnormal return (CCAR) is a weighted sum of the target and the acquirer abnormal returns based on their equity value 31 days before the announcement day.

Figure 1 shows evidence of acquirer cumulative abnormal returns from 30 days before the merger announcement to 30 days after. Consistent with Schwert (1996), the market reaction to acquirers is non-positive on average. More importantly, the plot

of acquirer CARs shows that the market is quite skeptical about merger gains produced by investment bank-advised deals: a persistent 2.5% to 3% abnormal return difference between the in-house group and the investment bank group lasts from zero to 30 days after the announcement. This finding suggests that the agency cost due to the conflict of interests between financial advisors and their clients damages the value of mergers. However, to confirm the impact of a financial advisor, we need to control for other deal characteristics in the regression analysis. Also, there are continuous downward drifts (both in-house and investment bank groups) after the deal announcement. One explanation for the downward drift is that acquirers time takeovers during periods of high stock performance. Thus, stocks are likely to be overvalued during the estimation period. Therefore the market corrects the overvaluation of the acquirer in the markup period.

Figure 1. Dynamic plots of acquirer cumulative abnormal returns
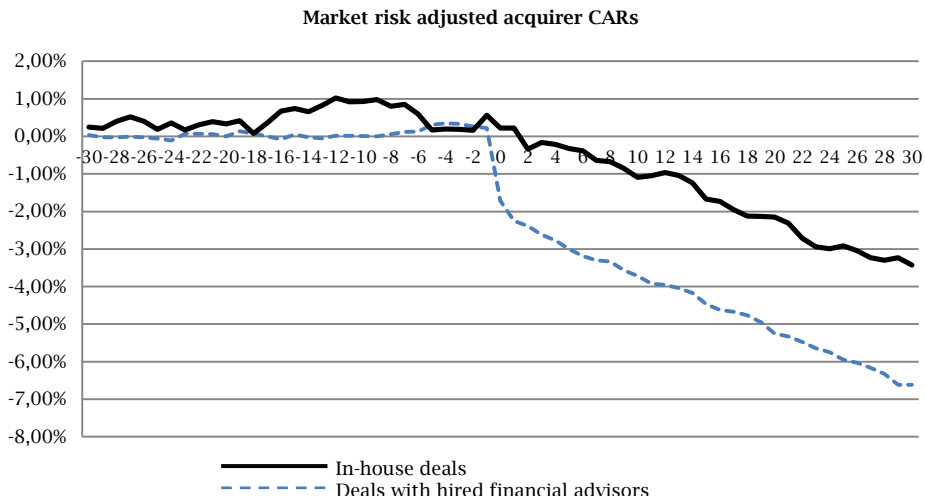
Market risk adjusted acquirer CARs

Note: Market model parameters used to define abnormal returns are estimated using the CRSP value-weighted portfolio for days -250 to -31.

We then plot the target cumulative abnormal returns in Figure 2. The average target CARs are 25% to 30%. Unlike acquirer abnormal returns, there is no persistent difference in target abnormal returns between the in-house sample and the investment bank sample. The target abnormal returns of the in-house group are almost overlapping with those of the investment bank group.

Figure 2. Dynamic plots of target cumulative abnormal returns
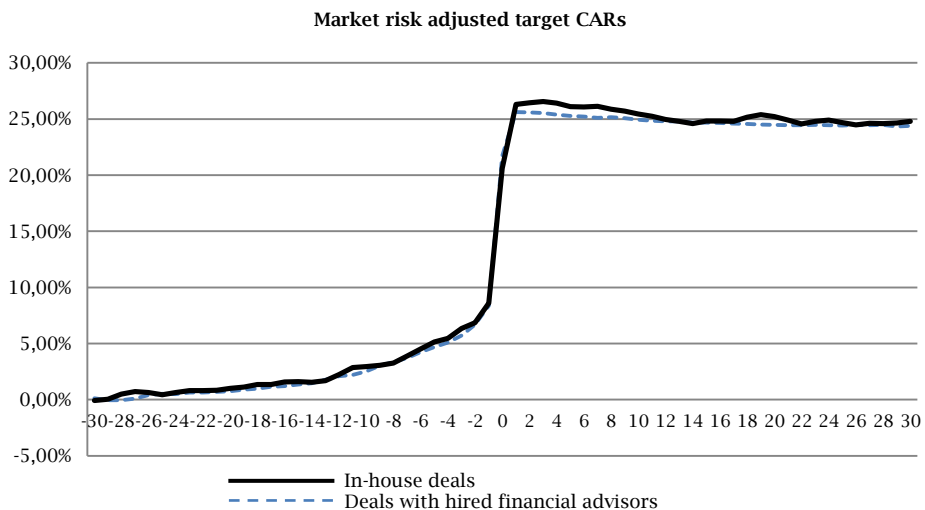
Market risk adjusted target CARs

Note: Market model parameters used to define abnormal returns are estimated using the CRSP value-weighted portfolio for days -250 to -31.

3.5. Other control variables

In the regression analysis, we control for the deal characteristics extracted from the SDC database and firm accounting information from the Compustat database. Table 2 reports the summary statistics of deal characteristics and firm accounting information based on the identity of financial advisors.

Table 2. Summary statistics of deal characteristics and financial information

	In-house sample					*Hired adviser sample*				
	Mean	*Median*	*Min*	*Max*	*N*	*Mean*	*Median*	*Min*	*Max*	*N*
% completed	77.56%	100%	-	-	254	88.24%	100%	-	-	1,455
Ln (transaction value)	5.01	4.95	0.38	9.72	254	6.64	6.52	2.02	12.01	1,455
Acquire Asset (Bil)	7.766	1.116	0.005	272.40	222	8.125	1.843	0.00078	405.20	1,295
Target Asset (Bil)	0.202	0.073	0.005	2.398.84	226	1.599	0.325	0.00064	65.50	1,369
Relative asset size	0.58	0.064	0.0006	41.40	202	0.52	0.26	0.00017	9.58	1,257
Relative equity size	0.21	0.068	0.0004	4.85	254	0.56	0.22	0.00034	136.14	1,455
% stock offer	56.69%	-	-	-	254	58.0%	-	-	-	1,455
No. of prior M&As of acquirer	1.38	0	0	17	254	0.95	0	0	18	1,455
% same industry	44.48%	-	-	-	254	53.6%	-	-	-	1,455
% same state	25.19%	-	-	-	254	20.89%	-	-	-	1,455
No. of bidder	1.13	1	1	4	254	1.11	1	1	4	1,455
% of toehold	0.58%	0%	0%	46.5%	254	0.44%	0%	0%	49.8%	1,455
Acquirer M/B	5.3	3.65	-60.74	53.34	222	5.49	3.38	-98.45	96.48	1,295
Target M/B	2.79	2.00	-30.56	21.50	226	3.94	2.43	-103.32	90.08	1,369
Target ROE (%)	-8.47%	7.23%	-1335.74%	160.43%	226	-2.01%	8.56%	-1667%	541%	1,370
Target ROA (%)	-1.60%	3.38%	-114.26%	28.85%	226	-0.76%	3.62%	-331.53%	93.3%	1,369
Target sales growth rate (t-1)	55.8%	16.53%	-89.11%	1239.37%	221	44.0%	15.75%	-100%	1174.54%	1,339
Target net income growth rate (t-1)	42.63%	-0.1%	-2132.78%	3796.77%	223	19.65%	5.83%	-2658.49%	3674.03%	1,346
Target equity ratio	55.64%	58.3%	-15.32%	95.52%	226	50.3%	51.05%	-319.2%	97.86%	1,369
Acquirer CAR (-1,1)	-0.005	-0.004	-0.271	0.517	254	-0.027	-0.016	-0.845	0.490	1,455
Target CAR (-1,1)	0.195	0.158	-0.302	1.185	254	0.187	0.160	-0.400	1.303	1,455

Note: Relative asset size is defined as the ratio of target asset over acquirer asset for the prior fiscal year, whereas relative equity size is the ratio of target market capitalization over the acquirer market capitalization 30 days before the merger announcement. Target (acquirer) M/B is defined as the ratio of the market value of equity relative to the book value of equity of the target (acquirer) for the prior fiscal year. A stock offer is defined as a deal in which at least 50% is paid by stock. Number of prior M&As is the number of mergers completed by the acquirer during the prior ten years. Deals occur in the same state if the acquirer and the target are headquartered in the same state, and deals occur in the same industry if the acquirer and the target have the same 3-digit SDC headers. Toehold is the percentage of target shares owned by the acquirer prior to the merger announcement. Target ROE (ROA) is the return on equity (asset) of the prior fiscal year from Compustat. Target sales (net income) growth rate equals to the difference between the sales (net income) of fiscal years (t-1) and (t-2) scaled by the sales (net income) of fiscal year (t-2).

Deal complexity captures the difficulty of completing a transaction. Information asymmetry between merging firms is greater for complicated deals. Thus such a type of transactions should be associated with the higher possibility of hiring financial advisors (Servaes & Zenner, 1996). We use log transaction value[8] as a proxy measure of deal size and deal complexity, since a bigger transaction usually involves a larger target, indicating that the merger requires more time and involves more resources. Multiple-bidders is perhaps another measure of deal complexity. Bradley, Desai, and Kim (1988) and Stulz, Walkling, and Song (1990) find that the number of bidders determines the relative market power of the bidding firms in the negotiation process. Multiple-bidders increase the wealth gain for the target and decrease the return to the acquirer.

The payment method is an important determinant of the merger gain. Announcement returns to bidding firms that offer cash payments are higher than those with stock payments (Amihud, Lev, & Travlos, 1990; Travlos, 1987). Also, a stock deal increases the complexity of the deal, and the

M&A advisor may also need to assist the finance arrangements in addition to the takeover advisory service. Servaes and Zenner (1996) report that an investment bank is more likely to be hired if the payment of the deal involves stock. We include a dummy variable, stock payment, which equals one if the transaction is financed at least 50% by stock payment and zero otherwise.

We also control for the acquirer toehold position. The toehold ownership is the percentage of shares of the target firm owned by the acquirer before the takeover. A large toehold represents an advantageous bargaining position for the acquirer, increases the possibility of deal completion, and is associated with higher bidder wealth gain (Shleifer & Vishny, 1986; Stulz et al., 1990). We measure the prior merger experience based on the number of completed mergers of the acquirer during the past ten years. Servaes and Zenner (1996) argue that acquirers are more experienced if they have more exposure to the M&A market. Thus, greater prior M&A experience may increase the possibility of using an in-house advisor rather than hiring an investment bank. Consistent with this argument, acquirers in the in-house groups are significantly more experienced.

Relative size explains the difference between the magnitudes of the acquirer and the target

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[8] The distribution of transaction values is highly skewed. Therefore, we convert the transaction value into log format in the regressions to eliminate biases.

abnormal returns. Relatively small bidding firms receive larger abnormal returns, whereas relatively small targets gain less (Asquith, Bruner, & Mullins, 1983). Relative size is defined as the ratio of the target market capitalization over that of the acquirer's, measured 31 days before the announcement. Because financial firms are highly leveraged, we construct a second measure of the relative size based on the total assets of the target over the total assets of the acquirer. The values of total assets are extracted from the annual SEC filings before the merger announcement from Compustat. Table 2 shows that the relative size is on average smaller of the in-house sample than that of the investment bank sample (35% smaller).

We use two variables to measure the geography and activity focus of the takeover. First, Berger and Ofek (1995) and Morck, Shleifer, and Vishny (1990) find that diversifying mergers are associated with lower synergy gains. Following Servaes and Zenner (1996), we set the variable, same industry, to one, if the first three-digit primary SIC codes of the target and the acquirer are the same, indicating that the merger is more likely to be activity-focusing. Otherwise, the takeover is activity diversifying, and the variable equals zero. Moreover, DeLong (2001) finds that the market favors activity/geography-focusing mergers over those with activity/geography-diversifying takeovers. Thus, we use geographic focus as a variable to control for the distance of the merging firms. If a target and an acquirer are headquartered in the same state, the takeover has a geographic focus; otherwise, it is a merger of geographic diversification. A geographic-diversifying merger indicates that the acquirer may obtain greater market share and increase the market power of existing business, however, as the distance gets farther, there could be greater information asymmetry between the target and the acquirer.

In addition to the deal characteristics, we control for the firm-level accounting information of

the acquirer and the target obtained from Compustat. The target profitability, the target equity ratio, and the target growth rate are obtained from the annual reports before the merger announcement. On average, targets are highly leveraged with a mean equity ratio of 14%, whereas targets have an average equity ratio of over 50%. We also control for the acquirer and target market-to-book (M/B) values to relate the merger outcome to the likelihood of stock overvaluation. The market timing theory in the M&A market is explained in Shleifer and Vishny (2003), and Rhodes-Kropf, Robinson, and Viswanathan (2005). The acquirer uses its overvalued stock to purchase the target, driving poor long-run acquirer stock performance due to the correction of misvaluation. Target (acquirer) M/B is defined as the target (acquirer) market capitalization 30 days before the announcement over the book value of the target (acquirer). There is no significant difference between the in-house group and the investment bank group. Since this study's sample period includes both the financial deregulation and the dot-com bubble periods, we include the year dummies in the regression to control the year fixed effects.

4. EMPIRICAL RESULTS

4.1. The choice of hiring financial advisors

In this section, we follow the approach of Servaes and Zenner (1996) to estimate the determinants of retaining an in-house advisor using probit models. We report both of the probit coefficients and the marginal effects in Table 3. The dependent variable equals one if the acquirer retains an in-house advisor and zero if the acquirer hires a professional financial advisor. In each panel, we report the estimation of the full sample without the accounting variables and the reduced sample but controlling the accounting information.

Table 3. Determinants of the use of in-house advisor

| Dependent variable | Prob (using an in-house advisor) | | | | | |
| | Model 1 | | | Model 2 | | |
	Coefficient	Marginal effect	P-value	Coefficient	Marginal effect	P-value
Relative size (market cap.)	-0.015	-0.501	0.27	-0.501***	-0.066	0.00
Ln (deal value)	-0.081***	-0.531	0.00	-0.531***	-0.070	0.00
Stock payment	0.011	0.087	0.43	0.087	0.011	0.42
Toehold	0.000	-0.007	0.86	-0.007	-0.001	0.57
Prior M&As of acquirer	0.020***	0.120	0.00	0.120***	0.016	0.00
Same state	0.034***	0.227	0.05	0.227**	0.033	0.04
Same industry	-0.022	-0.136	0.10	-0.136	-0.018	0.16
Acq. M/B				0.002	0.000	0.57
Target M/B				-0.008	-0.001	0.23
Target Equity ratio				-0.289	-0.038	0.13
Target ROE				-0.029	-0.004	0.63
Target sales growth				0.028	0.004	0.42
Target Net Income growth				0.002	0.000	0.79
Observations	1,709			1,421		
Pseudo R-square	22.35%			22.77%		
Chi-square	321.1***			260.5***		
Year fixed effect	Yes			Yes		

Note: The dependent variable equals one if the acquirer retains an in-house advisor. In each panel, estimations are based on both models with and without firm-level financial information from Compustat. Year dummies are included in all regressions. Explanatory variables are defined in Table 2. Estimation coefficient, p-values, and the corresponding marginal effects are reported.

In-house advisors are more likely to be involved in smaller deals or relatively small size targets, indicating that the choice of in-house advisors is associated with less complicated deals and low transaction costs. Acquirers that have more

acquisition experience are also associated with a higher possibility of advising themselves. In addition, a professional advisor is 3.3% more likely to be hired if the transaction is outside the acquirer's state. There is greater information

asymmetry between distant firms than firms that are close to one another. Thus, an acquirer would benefit more from the professional advice provided by an advisor on a distant target's performance, background, and merger strategies.

4.2. Financial advisors and deal completion

Prior literature shows that investment banks provide advisory fee driven service, and they have a great deal completion incentive (McLaughlin, 1990, 1992;

Rau, 2000). Table 4 shows the results of the probit regressions with dependent variables that equal one if a deal is completed and zero otherwise. We control for the advisor identity using a dummy variable that equals one if an in-house advisor is retained. We find that hiring a professional advisor increases the likelihood of deal completion by 15.8%. This finding is consistent with *P2* that hiring an acquirer advisor is associated with higher agency costs, where many deals get completed under the pressure of the financial advisors.

Table 4. Impacts of financial advisor on deal completion

Dependent variable	Prob (deal completion)		
	Coefficient	Marginal effect	P-value
In-house acq. advisor	**-0.648*****	**-0.158**	**0.00**
Relative size (market cap.)	-0.044	-0.008	0.12
Relative size (asset)			
Ln (deal value)	-0.068*	-0.012	0.07
Stock payment	-0.155	-0.026	0.12
Prior M&As of acquirer	0.032	0.006	0.20
Same industry	0.123	0.024	0.18
Same state	0.121	0.021	0.28
Toehold			
Number of bidders	-0.932***	-0.177	0.00
Acq. M/B	-0.002	0.0004	0.54
Target M/B	-0.001	0.0002	0.85
Target Equity ratio	0.120	0.022	0.53
Target ROE	-0.003	-0.001	0.96
Target sales growth	0.032	0.006	0.46
Target Net Income growth	0.001	0.0004	0.87
Year fixed effects	Yes		
Observations	1,421		
Pseudo R-square	14.45%		
Chi-square	160.95***		

Note: Explanatory variables are defined in Table 2. Estimation coefficient, p-values, and the corresponding marginal effects are reported.

We also find that larger deals are less likely to be completed, as are the deals with more bidders. Neither the target performance nor the acquirer M/B plays a role in the likelihood of deal completion.

4.3. Do financial advisors add value to acquirers?

The examination of the merger gain is the key test to distinguish the benefit and the cost of financial advisors. Table 5, Panel A presents the regression results with the (-1, +1) cumulative abnormal returns

of acquirers as the dependent variable. We employ the OLS regression as well as the two-stage treatment procedure to control for the potential self-selection bias of the merger sample. In the treatment procedure, the first-stage probit regression controls for the endogenous choice of retaining an in-house advisor, with the hazard ratio reported as an indicator of the significance of the self-selection bias. The second-stage regression reports the net impact of the advisor identity on the merger gain.

Table 5. The impact of acquirer advisor on three-day announcement returns (Part 1)

Panel A: Acquirer three-day (-1, +1) cumulative abnormal returns				
Dependent variable	Acquirer CAR			
	OLS	P-value	Treatment	P-value
In-house acq. advisor	**0.006**	**0.43**	**-0.016**	**0.55**
Relative size (asset)	-0.002	0.26	-0.002	0.22
Ln (deal value)	-0.006***	0.01	-0.008***	0.00
Stock payment	-0.038***	0.00	-0.038***	0.00
Prior M&As of acquirer	0.002	0.21	0.002	0.12
Same industry	-0.007	0.18	-0.007	0.15
Same state	0.004	0.52	0.005	0.42
Toehold	0.002***	0.00	0.002***	0.00
Number of bidders	-0.014	0.10	-0.014	0.10
Acq. M/B	0.000	0.28	0.000	0.30
Target M/B	0.000	0.16	0.000	0.17
Target equity ratio	-0.027***	0.00	-0.028***	0.00
Target ROE	-0.006**	0.04	-0.007**	0.03
Target sales growth	-0.003*	0.07	-0.003*	0.07
Target net income growth	0.000	0.67	0.000	0.67
Hazard ratio			0.013	0.38
Observations	1,232		1,232	
R-square	12.86%		22.85%	
P-value of F-test	<0.000		<0.000	
Year fixed effect	Yes		Yes	

Table 5. The impact of acquirer advisor on three-day announcement returns (Part 2)

Panel B: Target three-day (-1, +1) cumulative abnormal returns				
Dependent variable	*Target CAR*			
	OLS	P-value	Treatment	P-value
In-house acq. advisor	**0.022****	**0.24**	**0.156****	**0.01**
Relative size (asset)	-0.015***	0.00	-0.014	0.00
Ln (deal value)	0.000	0.98	0.010	0.12
Stock payment	-0.108***	0.00	-0.111	0.00
Prior M&As of acquirer	0.001	0.85	-0.003	0.34
Same industry	-0.013	0.27	-0.010	0.40
Same state	0.004	0.76	-0.002	0.89
Toehold	0.000	0.87	0.000	0.86
Number of bidders	-0.044**	0.03	-0.044	0.03
Acq. M/B	0.000	0.60	0.000	0.51
Target M/B	-0.002**	0.01	-0.001	0.02
Target equity ratio	0.031	0.19	0.037	0.12
Target ROE	-0.008	0.26	-0.007	0.33
Target sales growth	-0.009*	0.06	-0.009	0.06
Target net income growth	0.001	0.34	0.001	0.35
Hazard ratio			-0.079**	0.02
Observations	1232		1232	
R-square	9.61%		22.85%	
P-value of F-test	<0.000		<0.000	
Year fixed effect	Yes		Yes	
Panel C: Combined three-day (-1, +1) cumulative abnormal returns				
Dependent variable	*Combined CAR*			
	OLS	P-value	Treatment	P-value
In-house acq. advisor	**-0.004**	**0.64**	**-0.064****	**0.01**
Relative size	0.012***	0.00	0.012***	0.00
Ln (deal value)	0.000	0.90	-0.005*	0.07
Stock payment	-0.044***	0.00	-0.042***	0.00
Prior M&As of acquirer	-0.002	0.12	0.000	0.96
Same industry	-0.003	0.58	-0.004	0.41
Same state	0.005	0.38	0.008	0.18
Toehold	0.001**	0.01	0.001**	0.01
Number of bidders	-0.003	0.68	-0.003	0.70
Acq. M/B	0.000	0.11	0.000	0.16
Target M/B	0.000	0.98	0.000	0.87
Target equity ratio	-0.026***	0.00	-0.028***	0.00
Target ROE	-0.004	0.13	-0.005	0.10
Target sales growth	-0.004**	0.01	-0.004**	0.02
Target net income growth	0.000	0.45	0.000	0.45
Hazard ratio			0.036**	0.01
Observations	1,232		1,232	
R-square	15.01%		22.85%	
P-value of F-test	<0.000		<0.000	
Year fixed effect	Yes		Yes	

Note: Explanatory variables are defined in Table 2.

In-house advisors do not consistently affect the acquirer merger gain. The impact of in-house advisors is economically negative (-1.6%) on the acquirer CARs using the treatment model, but the result is not statistically significant. Consistent with the merger and acquisition literature, small size deals or small targets have higher acquirer announcement returns. Deals financed by stocks are also associated with lower acquirer CARs. Notably, deals with acquirer toeholds or fewer bidders give more negotiation advantages to acquirers and lead to higher announcement returns. The market also reacts positively to targets with lower equity ratio, lower profitability, or lower sales growth rate during the year before the transaction.

Collectively, these results indicate that hiring an outside M&A advisor by the acquirer does not harm or benefit the merger gain. Although the conflict of interests between the advisor and the client might harm the acquirer merger gain, the acquirer will benefit equally or more from the reduction of information asymmetry or better negotiation strategies suggested by the advisor.

4.4. Wealth redistribution and allocation efficiency

We further explore the role of an acquirer's financial advisor on the combined merger gain and the target merger gain. There are two channels in which an advisor can affect the acquisition gain. First, the advisor provides deal suggestions or financing arrangements to his or her client, producing a shift of wealth from the target to the acquirer or vice versa (wealth redistribution). Under this circumstance, there is no change in the combined merger gain measured by the weighted sum of acquirer and target CARs. For example, if the acquirer's advisor is driven by the incentive of obtaining greater market share, he or she will suggest a higher offer price, which will lead to a higher target merger gain. However, the total synergy produced by the newly merged entity is unchanged.

A second channel (allocation efficiency) is more commonly claimed by financial advisors. They argue that M&A advisory not only helps the client in the negotiation process but also brings better business combinations. That is, due to lack of information or prior experience, synergy without a financial advisor is lower in the combined entity than the match advised by a financial advisor. However, financial

advisors might suggest low-quality deals as well. Since they are fee driven and are ranked by the market share or the number of deals they have completed each year, they have great motivation to promote new business. This is especially true during the merger wave in the 1990s, where acquirers were often advised to conduct value-destroying, pre-emptive mergers before their competitors could make a move.[9] If so, the combined merger gain will be lower when financial advisors are involved.

We perform regressions of target CARs and combined CARs, shown in Table 5, Panels B, and C, to decompose the two channels and also find the directions in which each channel affects the merger synergies. Panel B in Table 5 shows the regression results of the target cumulative abnormal returns. Acquisitions of in-house advisors yield significantly higher announcement returns, a 2.2% higher return in the OLS regression, and a 15.6% higher return in the two-stage procedure, significantly at the 5% level in the two-stage treatment model.

Among the control variables, smaller targets, smaller deal sizes, lower target M/Bs, and multiple bidders lead to lower target announcement returns. Also, acquisitions bring more benefits to target shareholders when deals are financed by cash or with a lower target sales growth rate.

Panel C in Table 5 reports the regression estimation of the combined cumulative abnormal returns. In-house deals are associated with lower combined announcement returns. With the self-selection bias controlled for, the combined synergy drop is 6.64%, significant at the 5% level.

Collectively, we find significant evidence that the in-house deals are associated with mergers of low overall quality. In addition, deals undertaken without an outside advisor allow targets to extract more value. In other words, even though the evidence on the acquirer side is vague, the overall effect shows that the benefit of hiring an acquirer advisor is greater than the benefit of reducing agency friction. Therefore, hiring an acquirer advisor does not harm the acquirer.

5. CONCLUSION

We differentiate deals served by in-house advisors and deals by hired advisors and estimate which effect, the benefit brought by the advisor, and the agency cost due to the principle-agent problem dominates the merger gain. The univariate analysis shows that acquirer loss with in-house advisors is significantly less. Employing probit models, we find that in-house advisors lower the average completion rate of mergers by 15.8%. This finding is consistent with *P2* that self-interested financial advisors have high deal completion incentives.[10]

Controlling for the self-selection bias of the advisor decision, we estimate the impact of financial advisors on acquirers' three-day announcement returns. In-house deals are associated with relatively lower acquirer returns (-1.6%). Furthermore, we decompose the role of M&A advisors into

a wealth redistribution channel and allocation efficiency channel by analyzing target and combined announcement returns and find that in-house deals among non-financial institutions seem to destroy value.

The evidence is consistent with *P1* that benefits brought by financial advisors dominate the advisor-client conflict of interests since the information asymmetry between acquirers and targets is greater. In-house deals are of higher target returns (15.6%) and lower combined returns (-6.4%), indicating that the net effect of acquirer advisors takes place through both the wealth redistribution channel and the allocation efficiency channel.

We are aware of some potential limitations of the analysis provided. First, the identification of in-house deals might be imperfect. We rely on SDC's database and the provided financial advisor names to identify if a deal uses an in-house advisor or a hired adviser. If the advisor's name matches the acquirer or target or the advisor's name is missing, we believe the deal is an in-house. Due to the possibility of the data collecting errors of SDC, the missing advisor name could be either a true in-house deal or an error of missing information. However, the characteristics regression of in-house vs. hired deals reveals that our results are similar to Servaes and Zenner (1996); the acquirer (targets) are more likely to use in-house resources when the deal size is small, and the transactions are less complicated. Thus, the potential error of the in-house identification should not change the main findings of the paper.

We also realize that the stock market reaction is not a perfect measure of the M&A synergy. Some studies have used long-term merger gains to measure the M&A synergy gain. However, we believe the short-term announcement returns are a direct market reaction immediately following the announced deal, while a long-term wealth gains measures multiple corporate events and it is not as clean as the announcement returns. Furthermore, using the announcement returns allow us to separately measure the target side reaction and the acquire side reaction and allows us to better understand the financial advisor's role on the two sides of the M&A participants.

Finally, caveats exist for our study. Our sample is based on the U.S. context, questioning the generalization of the results to other regions around the world. Given this is a very relevant topic to both practitioners and scholars, this caveat calls for investigation on similar issues using data from economies of different development levels.

This study contributes to the financial advisor literature by showing that the total effect of M&A advisors is not a one-dimensional issue; instead, it is conditional on certain types of M&A environment. These findings have important implications for academics, market practitioners, and regulators. From a novel comparison between hired vs. in-house advisors, we confirm that the role of financial advisors could be beneficial. This could help the market evaluate more accurately the acquisition efficiency and monitor the performance of investment bankers closely.

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[9] Hankir, Rauch, and Umber (2009) explain why certain bank mergers have a value-decreasing market reaction. They argue that one possibility is the pre-emptive concern that acquirers intend to prevent competitors from acquiring their desired target and realizing competitive advantages.

[10] Although the evidence is consistent with the view that non-financial in-house deals have a high proportion dominated by incompetent or over-confident managers, this is inconsistent with the finding of Kisgen, Qian, and Song (2009) that over-confident managers hire advisors to protect them from lawsuits or pressure from the shareholders.

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