Common Advisors in Mergers and Acquisitions: Determinants and Consequences

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Comments welcome

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Abstract

This paper examines the determinants of merging firms' choice of a common or separate M&A advisor, and the consequences of this choice on several deal outcomes such as the speed of deal completion, deal quality, target valuation multiples, bid premiums, and the announcement returns to targets and acquirers. We analyze a sample of 6,272 acquisitions announced during 1981-2005 and account for the endogenous choice of common or separate advisors using several econometric methodologies. We find that common advisors are generally chosen in ways that make economic sense. After controlling for other variables, deals with common advisors take longer to complete, have lower valuations, lower premiums, and higher announcement returns to acquirers than deals with separate advisors. Our evidence that deals with common advisors turn out to be better for acquirers than for targets favors the conflict of interest hypothesis over the deal improvement hypothesis about the role of common advisors in mergers and acquisitions. We present two pieces of evidence that suggest that target firms learn over time. First, the incidence of deals with common advisors goes down dramatically over the 25 year period of our study. Second, we find no evidence that merging firms avoided sharing advisors during the 1980s, but strong and growing evidence of such avoidance over the following two decades.

Keywords: Mergers, Acquisitions, M&A Advisor, Merger Advisor, M&A.

JEL Codes: G24, G34, K22

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1. Introduction

In late 2004, Goldman Sachs approached the New York Stock Exchange (NYSE) with the idea of merging with Archipelago Holdings, Inc., a company that operated the Archipelago Exchange, an electronic stock market. The NYSE and Archipelago saw the strategic value of merging and in April 2005, the NYSE announced its plans to acquire Archipelago. Despite obvious conflicts of interest, the boards of both the NYSE and Archipelago chose Goldman Sachs to be their lead advisor. The rationale given for Goldman's dual role was that the investment bank (IB), as the former lead underwriter of Archipelago's initial public offering, knew more about the firm than any other potential advisor and had the most insight about the potential synergies that could be realized from the merger. Many critics questioned the propriety of Goldman's dual role and its ability to treat both firms equitably; they believed that the interests of at least one side of the transaction would be better served if NYSE and Archipelago used different advisors. Goldman Sachs spokesman Lucas Van Praag dismissed these complaints, saying, "Life is filled with conflicts, some real, some imagined" [See Fox (2005)].

What is the nature of the conflict faced by a common M&A advisor? A common advisor receives advisory fees from both parties to a deal, and the fees are usually contingent on deal completion [see McLaughlin (1990, 1992)]. As we discuss in section 3.2 below, this gives a common advisor a stronger incentive to complete deals and to complete them faster compared to separate advisors. In the process, deal quality sometimes takes a back seat. And a common advisor has an incentive to favor an acquirer over the target because the acquirer is the larger, surviving firm that can give the advisor IB business (underwriting, private placements and advice on M&As and restructurings) in the future. But there are two forces that can keep a common advisor from responding to these incentives. First, given the repeat nature of its business, the advisor may be deterred from exploiting its clients by the fear of damage to its reputation and potential litigation costs. Second, we would expect the managers, boards and legal counsels of targets and acquirers to consider how a common advisor's conflict would affect the quality of its advice before deciding to use a common advisor and acting on its advice. As discussed by

Mehran and Stulz (2007) in an excellent review article, market participants appear to consider financial intermediaries' conflicts of interest when making their decisions.[1]

While a common advisor is well-positioned to serve its own interests, it can also use its dual role to improve deal outcomes. An M&A advisor, usually an IB, contractually agrees to 'aid and assist' a client through the M&A process. During this process, an unshared advisor working for the seller (buyer) receives information provided by the buyer (seller), but it is likely to be less than the information that the buyer (seller) makes available to its own advisor. Presumably, a common advisor has greater access to information compared to the information available to an unshared advisor. A common advisor also has greater control over when information is exchanged between a target and acquirer. As information conduits, common advisors can reduce information asymmetry between acquirers and targets, and use their information advantage to improve deal outcomes. The two effects of a common advisor, conflict of interest and deal improvement, are not mutually exclusive. Which effect tends to dominate is an empirical question that we address in this paper. While the conflict of interest that common advisors face in M&A deals has received considerable attention in the media,[2] it has received little attention from financial researchers. We are unaware of any prior study that examines the determinants and consequences of sharing advisors. This paper is an attempt to fill this gap in the literature.

We start by examining the determinants of the choice to use a common or separate M&A advisor. We then examine the consequences of this choice on several deal outcomes such as the speed of deal completion, deal quality, target valuation multiples, bid premiums, and the announcement returns to targets and acquirers. We analyze a sample of 6,272 acquisitions during the period 1981-2005. We account for the endogenous nature of the choice to use common or separate advisors by using four econometric approaches: Heckman's (1979)

[1] For example, investors require higher rates of return on debt underwritten by the affiliates of commercial banks [see, e.g., Kroszner and Rajan (1994)]. Similarly, investors discount the 'buy' recommendations of financial analysts that face greater conflict with their employers' IB and brokerage businesses [see Agrawal and Chen (2008)].

[2] A 1982 *Wall Street Journal* article notes that Goldman Sachs advised both Connecticut General Corp. and INA Corp. in their $4 billion merger to become Cigna Corp., and advised both Morton-Norwich Products Inc. and Thiokol Corp. in their $550 million merger to become Morton-Thiokol, Inc. [see Metz (1982)]. Goldman Sachs' dual role in the 1998 merger of Norwest Corporation and Wells Fargo & Company was discussed in articles that appeared in the *New York Times*, *Investment Dealers' Digest*, and *American Banker* [see Holson (1998), Elstein (1998), and Colpulsky (1998)].

treatment effect model, two-stage least squares (2SLS), propensity score matching (PSM) and Abadie-Imbens (2006) matching (AIM). Only the first two approaches make use of instrumental variables (IVs). These econometric methods and our instruments are discussed in section 6.1 and Appendices 1 and 2 below.

We find that targets and acquirers are more likely to use common advisors in deals that are smaller, involve private targets, use common stock for payment, and have larger relative size; deals where the parties use multiple advisors, use top advisors, and have prior IB relationships with the counterparty's (but not their own) advisors; and deals in which a larger number of IBs specialize in the industry of both target and acquirer. After controlling for other variables, we find that compared to deals with separate advisors, deals with common advisors take longer to complete, have lower valuations, lower premiums, and higher announcement returns to acquirers. Our finding that deals with common advisors turn out to be better for acquirers than for targets favors the conflict of interest hypothesis over the deal improvement hypothesis about the role of shared advisors. Why then do targets agree to share advisors? We present two pieces of evidence that suggest that target firms learn over time. First, the proportion of deals with common advisors goes down considerably over the 25-year period that we analyze, from almost 5% of all the deals during the 1980s to a negligible 0.4% during the 2000s. Second, comparing the observed probability of common advisor deals to the predicted probability based on random pairing of advisors and clients, we find no evidence that merging firms avoided sharing advisors during the 1980s, but strong and growing evidence of such avoidance over the next two decades.

Our results provide new evidence on the effect of dual agency, in which one agent represents both a buyer and a seller. Prior analyses of this issue, discussed in section 2.2 below, examine residential real estate transactions and find evidence of conflict of interest. For example, sharing a realtor tends to hasten deal completion and reduce transaction prices. We extend this literature by examining M&A transactions in which both buyers and sellers are sophisticated parties that consider the conflicts of interest that are endemic in financial intermediation.

The remainder of this paper is organized as follows. Section 2 briefly reviews the prior literature. Section 3 discusses the roles of M&A advisors and develops our testable hypotheses. Section 4 describes the sample and data. Section 5 analyzes the determinants of common advisor choice. Section 6 investigates the impact of common advisors on various deal outcomes. Section

7 addresses the question of why target firms agree to share advisors in the face of adverse outcomes, and section 8 concludes.

2. Literature Review

Sections 2.1 to 2.3 briefly discuss the prior literatures on conflicts of interest faced by M&A advisors, dual agency, and investor response to financial institutions' conflicts.

2.1 Conflicts of interest faced by M&A advisors

M&A advisory fees are typically 1% of deal value. This percentage tends to increase (decrease) as deal size decreases (increases) [see Kosnik and Shapiro (1997)]. McLaughlin (1990, 1992) examines contracts between advisors and merging firms and finds that, on average, more than 80% of the advisory fees are contingent on deal completion, creating a conflict of interest between advisors and clients. The importance of M&A advisory fees to IBs gives them a strong incentive to pitch M&A 'ideas' to current or prospective clients, often pushing them into unnecessary deals of dubious value [see, e.g., Eccles and Crane (1988)].

Contingent-fee structures do not completely misalign the interests of M&A advisors and their clients. First, targets want to defer paying advisor fees until they have received payment from acquirers. Second, in stock deals, targets sometimes insist that advisor fees be paid with acquirer stock [see Miller (2008)]. Third, once serious negotiations begin, buyers and sellers are reluctant to back out of deals to avoid the taint that comes from participating in failed deals. Incomplete deals also make it harder to evaluate an advisor's performance.

Recent empirical studies find that contingent-fee structures lead to poor M&A outcomes. Rau (2000) finds that acquirers have worse post-acquisition stock performance in contingent-fee deals, suggesting that advisors subordinate deal quality to deal completion. Fees that M&A advisors earn from providing supplementary services to buyers and sellers also appear to have some effect on M&A outcomes. Stouraitis (2003) finds evidence that the advisors of acquirers tend to negotiate deal terms that are more favorable to their clients when the advisors are also involved in financing the acquisitions. Stouraitis's results also suggest that acquirers tend to overpay when their advisors are not involved in financing the acquisitions. Kisgen, Qian, and

Song (2009) find that when the acquirer's advisor also provides a fairness opinion, the likelihood of deal completion is higher, on average, but acquisition premiums tend to be unaffected.[3]

Evidence also suggests that a buy-side M&A advisor's valuation of the target is unaffected by its past provision of IB services to the target [see Calomiris and Singer (2004), and Calomiris and Hitscherich (2007)]. In deals where banks act as both lenders and advisors, Allen, Jagtiani, Peristiani, and Saunders (2004) find evidence of a net certification effect for targets but a conflict of interest effect for acquirers.

2.2 Dual agency

Common advisor arrangements in M&As are similar to dual agency in real estate transactions where the same real estate agent or agency represents both buyer and seller. The implications of principal-agent models of the impact of dual agency on sale price and time on the market in real estate transactions are ambiguous [see Gardiner, Heisler, Kallberg, and Liu (2007)]. The dual agent's knowledge of the buyers' private preference could allow the agent to ask and negotiate a higher sale price for the seller than a single agent. On the other hand, prior studies find that agents are more likely than owners to accept a lower price to speed-up a sale [see Rutherford, Springer, and Yavas (2005), Hendel, Nevo, and Ortalo-Magne (2008), Levitt and Syverson (2008)]. These findings are consistent with Holmström's (1979) model, which assumes that an agent maximizes expected total profits while minimizing disutility of effort.

Empirical research on dual agency in the real estate market finds that conflicts arising from dual agency affect the outcomes of real estate transactions – sharing a realtor speeds up completion significantly and reduces property price. Gardiner, Heisler, Kallberg, and Liu (2007) examine the impact of dual agency before and after a 1984 State of Hawaii law requiring mandatory disclosure of dual agency. They find that dual agency reduces the time to sale (by 8.5% pre-legislation and 8.1% post-legislation). Dual agency also reduces the sale price, but this effect is larger pre-legislation (8.0% vs. 1.4%). The prevalence of dual agency drops significantly from about 44% to 28% after the legislation.

Controlling for the endogenous decision of a buyer and a seller to work with a single agent, Kadiyali, Prince, and Simon (2011) find that dual agency has no overall effect on sale

[3] An M&A engagement letter typically states that the advisor will provide to the board of directors a fairness opinion, if requested.

price, but leads to a higher listing price and shorter time to sale. For the properties sold quickly, they find that listing and sales prices are higher under dual agency, consistent with their argument that agents suggest higher list prices based on their private information on buyer preferences, and then show the properties first to those buyers that the agents believe will pay the higher prices. They conclude that dual agency suffers from conflict of interests or benefits from informational efficiencies. Brastow, Springer, and Waller (2011) find that dual agency is chosen due to information advantages and transactional efficiencies from agent specialization.

2.3 Investor response to financial institutions' conflicts

Kroszner and Rajan (1994) study universal banking during the period 1921-1929 and find that investors 1) required higher rates of return on debt underwritten by affiliates of commercial banks, and 2) more heavily discounted such debt issued by smaller firms with little information. Their results suggest that investors were sophisticated enough to recognize that underwriters affiliated with commercial banks faced a conflict of interest. Agrawal and Chen (2008) find evidence that investors recognize that IBs pressure and compensate analysts to attract IB and brokerage business by providing rosy stock coverage. The reactions of stock prices and trading volume suggest that investors discount upgrades, but respond more strongly to downgrades, by more conflicted analysts. Malmendier and Shanthikumar (2007) find that large investors, but not small ones, tend to discount analyst opinions; large investors ignore stock upgrades by more conflicted analysts, but respond to downgrades.

3. Background and Hypotheses

Section 3.1 describes the role of financial advisors in merger negotiations**.** Sections 3.2 and 3.3 discuss implications of the conflict of interest hypothesis and deal improvement hypothesis, respectively, on various deal outcomes. Note that the two hypotheses are not mutually exclusive, so our tests will capture their net effect.

3.1 Role of M&A advisors in merger negotiations

The three subsections below briefly describe the roles that sell-side, buy-side and common advisors play in merger negotiations**.** Ultimately, the role of an M&A advisor is to

assist its client in obtaining both a better deal price and terms than the client would have obtained without the advisor.

3.1.1 Sell-side advisor

Typical services that a sell-side M&A advisor might perform include aiding the client in formulating a deal completion strategy, identifying and contacting potential buyers, preparing an offering memorandum, making presentations to the board of directors, negotiating with a potential buyer, and executing and closing a definitive agreement between the buyer and seller.[4] Services can also include preparing other merger-related documentation and coordinating documentation prepared by lawyers, accountants and other parties; valuing the target so that target shareholders and management can judge the reasonableness of an offer; and assisting management with profit projections to value the target [see, e.g., Fleuriet (2008)].

As the merger unfolds, the advisor attempts to facilitate a potential buyer's detailed due diligence to enable a competitive, well-financed bid. The advisor plans and organizes presentations and meetings attended by the buyer's management, M&A advisors, lawyers and consultants. The advisor may arrange site visits for the buyer's representatives to tour important manufacturing facilities, distribution centers or sales offices of the target [see Rosenbaum and Pearl (2009)].

To determine the reasonableness of a buyer's valuation requires knowing the assumptions and methodologies used in the buyer's calculation. A sell-side advisor learns about a seller to help the buyer understand the target's stand-alone value and the value to be gained by investing in the target. Information that would be relevant to a sell-side advisor includes, for example, growth, vulnerability, margin trends, customer concentration, contingent liabilities, and labor relations.

[4] An M&A advisor requires that board members of a client sign an engagement letter, which typically states that the advisor is (a) an independent contractor of the client and provides advice solely for the benefit of the client's board of directors [see Miller (2008, Appendix 2A)], and (b) not a fiduciary of the board or the client. A number of court rulings [see, e.g., HA2003 Liquidating Trust v. Credit Suisse Securities (2008) and Joyce v. Morgan Stanley (2008)] have affirmed that an M&A advisor's obligations and duties are strictly limited to those set forth in the contract, i.e., the engagement letter.

3.1.2 Buy-side advisor

A buy-side advisor concentrates on valuing the seller and determining a competitive bid price. The advisor prepares and coordinates documentation, values the target, assesses the proposed acquisition from strategic and financial perspectives, recommends ways to finance the acquisition, scouts rival bidders, helps the acquirer market the merger to the target's shareholders, obtains feedback from stock market participants, and may participate in negotiations with the target or its representatives. The advisor also often recommends an offer price and deal terms, estimates a final price that includes fees and expenses related to the merger, recommends a method of payment, and suggests negotiating strategies [see, e.g., Fleuriet (2008)].

3.1.3 Common advisor

How do merging firms come to choose a common financial advisor? To address this question, we read the *Background of the merger* section of S-4 merger registration statements, merger proxy statements and other related SEC filings for a number of common advisor deals in our sample where both targets and acquirers are public companies. Public companies are required to summarize in disclosure documents the events that led to mergers. In addition to reviewing SEC filings, we read news media coverage of these deals using the Factiva database.

In many cases, a firm engages an IB 'to explore strategic opportunities' for maximizing shareholder value or expanding its products and services. The IB proposes potential merger candidates, some of which may have retained the bank to identify merger opportunities for themselves. For example, in 2000, PSINet, Inc. approached Donaldson, Lufkin and Jenrette (DLJ) about acquiring a company to expand the range of information technology services it offered to customers. DLJ identified five potential targets, including Metamor Worldwide, Inc., which DLJ was concurrently advising about merger opportunities. Similarly, in 1999, Sandpiper Networks, Inc. hired Credit Suisse First Boston (CSFB) to find business-combination candidates. Digital Island, Inc., the firm that ultimately acquired Sandpiper, had previously engaged CSFB to identify merger opportunities.

Some firms that used common advisors noted that they worked with separate teams from the same IB. Examples include the 1998 merger of Norwest Corp. and Wells Fargo, the 2000 merger of PSINet and Metamor Worldwide, and the 2000 merger of Broadbase Software, Inc.

and Servicesoft, Inc. The common advisors in these deals were Goldman Sachs, DLJ, and Morgan Stanley, respectively.

Fee arrangements vary in common advisor deals. In the merger of Crompton Knowles and Witco in 1999, Witco paid Goldman Sachs a fee of about $12 million, while Crompton paid it a fee of $12 million minus the lower of $7 million and the fee paid by Witco. In the 1996 merger of CU Bancorp and Home Bancorp, the fee equaled 1% of the combined market cap of the two companies, not to exceed $1.1 million. In the 1997 merger of Wausau Paper Mills and Mosinee Paper Corp, the two companies agreed to pay Goldman Sachs 0.5% of the aggregate value of their merger; the combined fee would be between $5 million and $6.25 million. Firms using a common M&A advisor usually obtain additional fairness opinions from other advisors.

3.2 Conflict of interest hypothesis

Greater access to information and the ability to influence both sides of M&A transactions give a common M&A advisor, relative to separate advisors, advantages and opportunities that it can leverage to complete deals more quickly and favor acquirers, the surviving entities that could hire the IB in the future. We discuss implications of this conflict of interest hypothesis on time to deal completion in section 3.2.1, deal quality in section 3.2.2, target valuation and premiums in section 3.2.3, and gains to target and acquirer shareholders in section 3.2.4 below.

3.2.1 Time to completion

As noted in section 2.1 above, contracts between M&A advisors and their clients typically tie fees to deal completion, which encourages advisors to subordinate deal quality, if necessary, to expedite completion. Resolving deals more quickly allows the advisors to earn fees in less time and reduce their opportunity costs by freeing-up resources for other revenue-generating activities. Under the conflict of interest hypothesis, having information about targets and acquirers and the ability to influence both sides of deals allows common advisors to complete deals more quickly.

3.2.2 Deal quality

Acquisitions are usually followed by periods of negative abnormal returns for acquiring firms [see, e.g., Agrawal, Jaffe, and Mandelker (1992)]. Under the conflict of interest hypothesis,

acquirer shareholders fare worse after deals involving common advisors, who tend to rush the M&A process and push for deal completion. Common advisors wed poorly matched targets and acquirers that, consequently, forego mergers with firms that would have been more compatible. Recommending ill-conceived deals would tend to produce smaller total wealth gains for the shareholders of the merging firms and worse post-acquisition performance for acquiring firms. The conflict of interest hypothesis predicts a negative relation between having a common advisor, and deal quality, which we measure as the combined wealth gain realized by shareholders of the merging firms and acquirers' post-acquisition stock performance.

3.2.3 Target valuation and premiums

When advising both sides of a deal, a common advisor has an incentive to favor the acquirer, typically the surviving firm, which could hire the advisor in the future to assist with acquisitions, securities underwriting, and other IB services. In addition, even if the merger does not go through and the target firm remains, the acquirer is typically larger than the target and so offers greater business opportunities for the advisor. Under the conflict of interest hypothesis, a common advisor favors the acquirer, even when doing so harms the target. One approach to increasing the probability of serving the acquirer in the future is to curry favor with management and the board of directors of the acquirer by recommending that the acquirer bid low while encouraging the target to accept the bid. If common advisors favor acquirers over targets and expect that the present values of their potential future IB business from acquirers will exceed the foregone fees that result from low-bid transactions, then valuations of targets and premiums paid to targets (compared to their pre-bid stock prices) in common advisor deals would both be lower on average. Thus, the conflict of interest hypothesis implies that target valuations and acquisition premiums would be lower in deals with common advisors.

3.2.4 Gains to targets and acquirers

As discussed in section 3.2.3 above, a common advisor has an incentive to favor acquirers over targets. This implies that, other things being the same, the gains from the merger should be higher for acquirer shareholders, and lower for target shareholders, in deals with common advisors than in deals with separate advisors.

3.3 Deal improvement hypothesis

There are a number of ways that common advisors can use their information advantage to improve deal outcomes. While completing an M&A transaction generally requires collaboration between a buyer and a seller, M&A negotiations also have an adversarial component as the two sides haggle over the purchase price and deal terms [see, e.g., Eccles and Crane (1988)]. A common advisor can eliminate delays or impasses that could result from prolonged negotiations between the two parties and their advisors. A common advisor can reduce information asymmetry between the acquirer and target, which leads to more accurate and realistic estimates of merger synergies. Relative to an advisor that is not shared, a common advisor is in a better position to minimize differences in the assumptions that buyers and sellers use in their valuations.

A common advisor has greater control over when information is exchanged between buyer and seller, and can give the M&A process momentum by timing information exchanges, concentrating first on the win-win aspects of a deal and delaying the revelation of any win-lose aspects. During merger negotiations, especially in the early stages, buyers and sellers closely guard trade secrets and sensitive information. As negotiations proceed, a common advisor would potentially have access to closely-guarded proprietary information as the buyer and seller gradually loosen restrictions on revealing it. A common advisor with access to this information is better equipped to identify and value synergies while maintaining the confidentiality of information for both sides.

The deal improvement hypothesis has several implications for deal outcomes. First, it implies that a deal could take more or less time to be resolved (i.e., completed or rejected). Information advantages that result from sharing advisors can lead to low-quality deals to be rejected sooner or high-quality deals to drag on longer because more information leads to more due diligence. Second, it predicts that deals with a common advisor should be of better quality than deals without common advisors. Third, a better deal implies greater combined gain from the merger. Since the deal improvement hypothesis does not imply that the advisor favors one party at the expense of the other, target valuations and premiums paid to targets over their pre-bid share prices should be at least as high in deals with common advisors as those in deals with separate advisors. Finally, a better deal and no favoritism to either party implies that the gains

from the merger to shareholders of both targets and acquirers should be higher in deals with common advisors than in deals with separate advisors.

4. Sample and Data

The first three subsections below discuss sample selection, and the measurement of deal valuation, quality, and advisor reputation. Subsections 4.4 through 4.6 describe our sample distribution, deal and advisor characteristics, and deal valuation, premiums, returns, and performance.

4.1 Sample selection

We use the Securities Data Corporation Mergers and Acquisitions database (hereafter, SDC) to identify all acquisitions made by public companies from January 1, 1981 to December 31, 2005 in which both target and acquirer use an M&A advisor.[5] There are 7,328 such deals that are resolved, excluding recapitalizations, self-tenders, exchange offers, repurchases, privatizations, and transactions with unreported deal values. We exclude 28 leveraged buyouts, six spin-offs, 299 clean-up mergers (where the target is a partially-owned subsidiary of the acquirer), and 579 transactions where the acquired ownership interest in the target is less than 50%. We also remove 140 hostile takeovers from our sample because they preclude the use of common advisors. That leaves us with a final sample of 6,272 deals.

We classify an acquisition as a common advisor deal if the target and acquirer use the same advisor. For each of these transactions, we verify that the target and acquirer use the same advisor by reading 8-Ks and S-4s filed with the SEC, and press releases and news articles resulting from keyword searches in the LexisNexis Newswires and ProQuest Newspapers databases. After eliminating two acquisitions of real estate investment trusts (REITs) and two consolidations of subsidiaries from the common advisor group, our final sample consists of 6,272 deals. Targets and acquirers use common advisors in 98 of these deals and separate advisors in the remaining deals. All of the targets in the sample, and all except 978 of the acquirers, are U.S. firms.

[5] Our sample begins in 1981 because that is the first year for which SDC reports a deal with a common advisor. SDC does not report any common advisor deals for 2006, the last year for which data were available at the time of sample construction.

4.2 Valuing deals and measuring deal quality

We measure deal valuation using the ratio of *Deal value* to four metrics: sales; book value of stockholders' equity; earnings before interest, taxes, depreciation, and amortization (EBITDA); and net earnings. *Deal value* is the amount paid by the acquirer to target shareholders, excluding any liabilities of the target that the acquirer assumed. For public targets, we obtain from Compustat data on net sales, stockholders' equity, EBITDA, and net earnings for the last fiscal year ending before acquisition announcement. For private targets in common advisor deals, we obtain financial data from the SEC filings of their acquirers[6], where available, and from SDC otherwise.

To measure the effect that deals have on acquirers, we calculate cumulative abnormal returns (CARs) on the stocks of acquirers around the announcement dates of acquisitions. We estimate the abnormal return on stock i for day t as:

$$AR_{it} = r_{it} - r_{mt}, \tag{1}$$

where r_{it} and r_{mt} are the day t returns on the stock and the market. The latter is the CRSP equally weighted index, which includes stocks traded on NYSE, Amex and Nasdaq. The CAR for firm i over trading days (t_1, t_2) around the announcement date (day 0) equals:

$$CAR^{i}_{t_1,t_2} = \sum_{t=t_2}^{t=t_1} AR_{it}. \tag{2}$$

For deals involving public targets, we also compute the CARs of targets and the premiums paid for targets. The premium equals the percentage difference between *Deal value* and the market capitalization of the target 40 trading days before the announcement date of the acquisition. Market capitalization equals common shares outstanding multiplied by price per share. Following Rau and Vermaelen (1998), we use the long-run, post-acquisition abnormal stock performance of an acquirer as a measure of deal quality, measured as the estimated intercept from the Carhart (1997) four-factor model, using monthly stock returns for months +1 to +36 after the deal-announcement month.

For deals involving public targets, we also calculate the proportional gains of acquirers. We define:

[6] Securities regulations require that a public acquirer disclose in its SEC filings (e.g., S-4, 8-K, Proxy, or S-1) the target's financials, if the deal value exceeds 10% of the acquirer's total assets. See Rodrigues and Stegemoller (2007) for details.

$$\text{Target wealth gain} = \begin{pmatrix}\text{Target market value}\\ \text{at trading day t = -21}\end{pmatrix}\begin{pmatrix}\text{Target}\\ \text{CAR}(-20,+5)\end{pmatrix}(1 - \text{Acquirer's Toehold}),\ \text{and}$$

$$\text{Acquirer wealth gain} = \begin{pmatrix}\text{Acquirer market value}\\ \text{at trading day t = -21}\end{pmatrix}\begin{pmatrix}\text{Acquirer}\\ \text{CAR}(-20,+5)\end{pmatrix}.$$

Combined wealth gain equals *Target wealth gain* plus *Acquirer wealth gain*. Following Kale, Kini, and Ryan (2003), we define the acquirer's share of the wealth gain as *Acquirer wealth gain* divided by *Combined wealth gain* if *Combined wealth gain* is positive, and as *Acquirer wealth gain/Combined wealth gain* subtracted from one, if *Combined wealth gain* is negative. Finally, we use the combined cumulative abnormal return (CCAR) as another measure of deal quality. CCAR equals the value-weighted average return of stockholders of acquirers and targets over the period (-20, +5) relative to the announcement date. We calculate weights using the market capitalizations of targets and acquirers on day -21. CCAR measures the total shareholder wealth gain of a deal on the combined market capitalizations of the target and acquiring firms [see, e.g., Bradley, Desai, and Kim (1988), and Kale, Kini, and Ryan (2003)] and reflects the total wealth effect of the acquisition on shareholders of public targets and acquirers.

4.3 Measuring advisor reputation

Following Rau (2000) and others, we use advisors' M&A market share to measure advisor reputation. For each year in our sample, we include all completed and withdrawn mergers and tender offers where SDC reports that targets and acquirers both use M&A advisors. For a given year, an advisor's market share equals the total value of the deals for which it was an advisor divided by the total value of all the deals in which M&A advisors were used, expressed as a percentage.

As in Rau (2000), we rank IBs by their M&A market share for each year in our sample, classifying the top five IBs as top tier, the next 15 as second tier, and the remaining as third tier. For a give deal, we classify advisors as top tier, second tier, or third tier based on the ranking for the year in which a deal is announced. For a target or acquirer that uses more than one advisor, we use the rank of the advisor with the largest market share.

4.4 Sample distributions by year and industry

Panel A of Table 1 shows the distribution of our sample by the year of deal announcement. About 13% of our total sample of acquisitions took place during the 1985-89 merger boom and another 50% during the 1994-2000 stock market boom. The frequency of deals with common advisors has declined over time, from 4.92% of all the deals during the 1980s, to 1.16% during the 1990s, to 0.44% during the 2000s.

Panel B of Table 1 shows industry distributions of targets and acquirers in our sample. Using Song and Walkling's (1993) 20 industry groupings, we classify sample firms by industry based on their primary two-digit SIC codes from SDC. About 26% (26%) of the targets (acquirers) in our sample are in the financial industry, 20% (17%) are in the service sector, 10% (10%) are machinery manufacturers, and 9% (10%) are in transport, communication and utility industries. The largest number of deals with common advisors involve (targets; acquirers) in financials (32; 29), services (16; 13), chemicals (10; 9), and transport, communication and utilities (9; 12).

4.5 Advisor and deal characteristics

Table 2 reports the advisor and deal characteristics of our sample. Panel A reports the characteristics of M&A advisors. The median market share of target advisors is 1% (2%) for deals with (without) common advisors; for acquirer advisors, it is 2% (4%). About one-third of both target and acquirer advisors are top-tier IBs; about one-half are in the top two tiers. While the median M&A advisor fee for acquirers is similar between the deals with common and separate advisors, it is significantly lower for targets in the former deals than the latter ($1.38 million vs. $2.49 million).

Panel B of Table 2 compares characteristics of transactions with and without common advisors**.** Parties in deals with common advisors tend to employ multiple advisors more often than in deals with separate advisors. In deals without common advisors, the proportion of targets (acquirers) that use multiple advisors is 0.15 (0.13), compared to 0.33 (0.38) in deals with common advisors. The differences are statistically significant at the 1% level. As Kisgen, Qian, and Song (2009) point out, a second advisor can reduce concerns about an unfair outcome or the appearance of impropriety.

The completion rate for common advisor deals is 95%, which is somewhat lower than the nearly 100% completion rate for deals without common advisors.[7] Deals with common advisors take longer to complete than those without. Both the mean and median number of days from deal announcement to its resolution are higher for the former deals. For example, the median time to resolution is 139 (101) days for deals with (without) common advisors. The differences in the mean and median number of days until deal resolution between the two types of deals are both statistically significant at the 1% level.

Common advisor deals more often tend to be mergers and paid for by stock than deals with separate advisors. Tender offers (cash transactions) comprise about 0.07 (0.31) of common advisor deals compared to 0.13 (0.43) for deals without common advisors; this difference is statistically significant at the 10% (5%) level. Stock transactions comprise about 0.39 of common advisor deals compared to 0.28 of deals without common advisors; this difference is statistically significant at the 5% level.

Compared to targets without common advisors, targets with common advisors are significantly less likely to be public companies and more likely to be subsidiaries. About 40% (54%) of the targets with (without) common advisors are public companies, and 35% (24%) are subsidiaries; the remaining are private companies.

Compared to deals without common advisors, deals with common advisors tend to be smaller, involve smaller acquirers, but have larger relative size. The median deal value for deals with (without) common advisors is $166 ($256) million. The median values for *Relative size*, defined as *Deal value* divided by the market value of the acquirer's equity, are 0.50 and 0.25, respectively, for the two groups of deals. All of these differences are statistically significant at the 1% level.

4.6 Deal valuation, premiums, returns, and performance

Table 3 compares the mean and median values of deal valuations, premiums, returns, and performance in the two types of deals. In Panel A, we report the target valuation multiples, CARs over three announcement windows, and long-run post-acquisition stock performance for the full sample. The median ratio of deal value to net earnings for targets is significantly lower

[7] As discussed in section 4.1 above, our sample consists of deals where both sides have advisors. The high deal-completion rates that we find may not be surprising given that advisors usually get paid only if deals are completed.

in deals with common advisors than in deals with separate advisors. Other than that, mean and median target valuation multiples are statistically indistinguishable between the two groups. Deals with and without common advisors have statistically similar long-run post-acquisition abnormal returns over months (+1, +36). Acquirer CARs are also similar between the two types of deals over the three announcement windows that we examine.

For the sub-sample of acquisitions of public targets, Panel B of Table 3 shows the mean and median values of acquisition premiums, the announcement CARs for targets and acquirers, and the combined wealth gains to acquirer and target shareholders, i.e. CCARs. The median acquisition premium is 38% (49%) in the sample of deals with (without) common advisors. The difference is statistically significant at the 5% level. Both mean and median values of target CARs over days (-20, +5) are significantly lower in deals with common rather than separate advisors. Other than that, differences in the mean or median values of acquirer and target CARs, CCARs and the proportional gains of acquirers are statistically insignificant between deals with and without common advisors.

5. Determinants of the Choice of a Common Advisor

We start our analysis by examining whether the presence of a common advisor is systematically related to firm, deal and advisor characteristics. If the choice to use a common advisor is a random occurrence, we should not expect it to be related to such characteristics. This analysis serves a dual purpose. First, it contributes to the recent literature that examines the use of particular deal features in mergers and acquisitions such as contingent fees, lockup options, termination fees, collars, and fairness opinions [see, e.g, Rau (2000), Burch(2001), Bates and Lemmon (2003), Officer (2004), and Kisgen, Qian, and Song (2009), respectively]. Second, this analysis can help us identify the characteristics of common advisor deals that we can use to account for potential endogenous relations between common advisors and various deal outcomes analyzed in section 6 below.

We expect the use of common advisors to be negatively related to deal size. Targets and acquirers may be less willing to use common advisors in larger deals, where there is more at stake. We control for *Ln(Deal value)* as a measure of deal size. When target firms have greater bargaining power, they may be less afraid of being taken advantage of by common advisors, and so more likely to agree to sharing advisors. Following Hartzell, Ofek, and Yermack (2004), we

use *Ln(Relative size)* to control for a target's bargaining power. Acquirers may be more apt to use common advisors when acquiring private firms to reduce the greater information asymmetry with private targets. The potential for shareholder lawsuits alleging advisor conflict is also lower with private targets. We control for a target's ownership status using *Target is public*, a binary variable that equals one if a target has publicly traded stock and equals zero otherwise. We would expect common advisor arrangements to be less likely in tender offers than in mergers. Tender offers, where the acquirer bypasses the board and management of a public target and makes an offer directly to the target's shareholders, tend to be less friendly than mergers, where the boards and managements of acquirers and targets agree to merge their companies. We control for *Tender offer*, a binary variable that equals one (zero) if the acquisition is (is not) a tender offer.

An acquirer likely faces greater information asymmetry when the target is in a different industry. In such cases, using a common advisor can be more beneficial because it can increase information flows between the target and acquirer. We control for a binary variable *Same industry*, which equals one (zero) when the two-digit SIC codes of the target and acquirer are the same (different). Similarly, a common advisor can use its information advantage to convince target and acquiring firms to use stock as the method of payment to share the risk of the merged firms [Hansen (1987)]. This implies that stock-financed deals are more likely to employ a common advisor. We control for *Acquirer pays with stock*, which equals one if the acquirer uses stock to pay target shareholders, and equals zero otherwise.

Pre-deal relationships with IBs can reduce concerns over the conflict faced by a common advisor. Allen, Jagtiani, Peristiani, and Saunders (2004) find that acquirers tend to select M&A advisors that have provided them IB services in the past. We would expect that a party in a merger is more (less) likely to agree to hire a common advisor if it has a prior relationship with the counter-party's (its own) advisor. We control for these prior relationships using four binary variables. *Target has pre-deal relationship with acquirer's (its) advisor* equals one if any of the acquirer's (target's) current advisors advised the target in an M&A transaction or underwrote a securities offering of the target over the prior five years, and equals zero otherwise. Similarly, *Acquirer has pre-deal relationship with its (target's) advisor* equals one if any of the acquirer's (target's) current advisors advised the acquirer in an M&A transaction or underwrote a securities offering of the acquirer over the prior five years, and equals zero otherwise.

A more reputable M&A advisor has greater incentive to be even-handed when serving the interests of both sides of a deal as a common advisor because it has more reputational capital to lose if shareholders on either side of a deal are unhappy with the terms of a merger and sue the advisor. So deals with more reputable advisors are more likely to have a common advisor. We control for reputation by including three binary variables based on advisors' M&A market share, following Rau (2000). *Target (Acquirer) [Both parties] has/have a top 5 advisor* equals one if the target (acquirer) [both parties] use a top 5 advisor based on prior year M&A market share, and equals zero otherwise.

When a common advisor works with one or more other advisors, the client can compare the information provided by the common advisor to that from other advisors, reducing the common advisor's ability to favor the counterparty. We expect that a common advisor is more likely to be chosen if one or both parties use multiple advisors. We control for three binary variables, *Target (Acquirer)* [Both parties] *has/have multiple advisors*, which equals one if the target (acquirer) [both parties] use multiple advisors and equals zero otherwise.

Finally, the choice of a common advisor should be related to the number of IBs that specialize in the industries of both bidder and target, although the sign of this relation is unclear. M&A advisors specialize in particular industries and are valued for their industry-specific knowledge, skill and networks (see, e.g., Leander (1998)). An IB is more likely to be picked by both sides of a deal if it specializes in the industries of both the parties because such expertise enables the IB to better identify the potential synergies in a deal. The smaller the number of such IBs for a deal, the more likely it is that both parties will agree to a common advisor, given the scarcity of such expertise. This argument implies that the choice of a common advisor should be negatively related to the number of IBs who specialize in both industries. Alternatively, an IB who does business in several industries may push their clients in different industries to merge by identifying potential synergies between them, with the bank serving as the common advisor. Indeed this possibility is suggested by the discussion in section 3.1.3 of how these deals come about. So if more IBs have experience in the two industries in which firms are willing to merge, with each IB coaxing their current and potential clients, a common advisor is more likely to be chosen. This argument implies that the choice of a common advisor should be positively related to the number of IBs who specialize in both industries. Our regressions of the choice of a common advisor control for *Ln(# of IBs specializing in both industries +1)*. We define *# of IBs*

specializing in both industries as the number of IBs which have served as M&A advisors in the primary 2-digit SIC industries of both the target and acquirer over the five years before the acquisition announcement.

Table 4 summarizes these predictions and reports the results from two probit models of the decision to use common advisors. Model (1) includes all the variables discussed above; model (2) is similar, except that it omits the pre-deal relationship variables and dummies for whether one of the parties uses a top advisor or multiple advisors. The marginal effects reported in Table 4 represent the change in the probability of using a common advisor for a unit change in a given covariate, assuming that all other covariates take their sample mean values. The results of the two regressions are similar, although model (1) has a larger pseudo-R-squared, indicating that it explains more of the cross-sectional variation in the use of common versus separate advisors. Most of the coefficient estimates have the predicted sign and are generally statistically significant. A common advisor is more likely to be picked in deals that are larger relative to the acquirer, smaller in absolute size, involve private targets, and are paid for by stock; deals where each party has a prior relationship with the counter-party's, but not its own, advisor; deals where both parties are advised by a top advisor and use multiple advisors; and deals where more IBs specialize in industries of both target and acquirer.

6. The Impact of Common Advisors on Deal Outcomes

Section 6.1 describes our empirical methodologies. The next four subsections discuss our empirical results on the speed of deal resolution; deal quality; target valuations, deal premiums and target announcement returns; and acquirer announcement returns.

6.1 Methodologies

Our main interest is in the impact of common advisors on deal outcomes. When studying how common advisors affect acquisition outcomes such as deal completion and target valuation, we have to consider that the choice of sharing advisors is endogenously determined by the two sides of a deal. Certain characteristics of targets, acquirers, deals and IBs influence deal outcomes, and as seen in section 5 above, the propensity of the two sides agreeing to share an advisor. This endogenous selection process can potentially bias estimates of the impact of common advisors on deal outcomes. To reduce selection bias, we control for a large number of

relevant covariates in our deal outcome regressions. In addition, we use four different methodologies to reduce concerns about the endogeneity of common advisor choice. These are: (1) Heckman's two-stage treatment effect model, (2) two-stage least squares (2SLS) regressions, (3) propensity score matching (PSM), and (4) Abadie and Imbens matching (AIM). Appendix 1 describes all four methodologies, their implementation, and our instrumental variables (IVs) for the first two of these approaches that require the use of IVs. The results of the first two approaches are presented in Tables 5 through 9 for the different deal outcomes, and the results of the last two approaches are summarized in Table 10 for all the deal outcomes. In addition to analyzing the full sample, we employ all of these methodologies on a choice-based sample, described in Appendix 2, designed to address the issues that arise from common advisor deals being rare events. These results are quite similar to those for the full sample shown in Tables 5 through 10 and are not tabulated for brevity.

6.2 Are deals with common advisors resolved more quickly?

We start by examining whether the choice of a common advisor affects the time required to complete deals. As discussed in section 3 above, the conflict of interest hypothesis predicts that common advisor deals will be completed more quickly, while the deal improvement hypothesis does not have a clear prediction. To test this prediction, we estimate regressions of the natural logarithm of the number of days to deal completion. The main explanatory variable is the dummy variable for common advisor. We control for relative size, deal value, and dummy variables for public target, tender offer, same industry, stock payment, whether both parties have prior relations with their M&A advisors, whether each party uses a top 5 advisor, and whether each party uses multiple advisors. All the variables are defined in the Appendix Table A.1. The regressions also include dummy variables for the year of deal announcement. Table 5 shows the results of the three regression models. For brevity, we do not report the coefficient estimates of the intercept and year dummies. In all regression tables, the p-value of the endogeneity test in 2SLS regressions is based on the Durbin-Wu-Hausman test, heteroskedasticity-consistent t-statistics are reported in parentheses below the coefficient estimates, and the p-value is reported for Lambda.

In the OLS regression, the coefficient of the common advisor variable is positive but statistically insignificant. But this regression does not account for the possible endogenous

selection of common advisors, an issue we address using several different approaches. First, in the treatment effect model, the coefficient estimate of Lambda is statistically significant (with a p-value of 0.08), suggesting that common advisors are chosen endogenously. The negative coefficient estimate of Lambda implies that factors that induce firms to pick common advisors are related to faster deal completion. After controlling for selectivity, the use of common advisors increases the time it takes to complete a deal. Second, in the 2SLS model, the p-value of the test for endogeneity is <.001, again consistent with endogeneity of common advisors in this context. The coefficient of the common advisor variable is significantly positive, suggesting that the use of common advisors reduces the speed of deal completion. Third, Row 1 of Table 10 shows the average treatment effect for the treated (ATT) of common advisors for using the four different matching methods described in Appendix 1. The ATT for the time to deal resolution is positive under all four methods, and is statistically significant under one of the methods. Overall, our results suggest that the use of common advisors increases the time it takes to complete deals. The magnitude of this increase ranges from 1.6 (= $e^{0.467}$) days in the treatment effect regression[8] to 38.7 days under the statistically significant matching method. Compared to the sample mean of 121.78 days to deal resolution, this represents an increase of 1.3% to 31.8%. This result is inconsistent with the conflict of interest hypothesis that common advisors use their influence and information advantage to hurry the M&A process and reduce the time required to complete deals, freeing up their resources for other deals.

In Table 5, the time to completion is significantly longer in deals that are bigger relative to acquirer, deals involving public targets, deals where both target and bidder are in the same industry, stock deals, deals where the acquirer uses a top 5 advisor, and deals where either party uses multiple advisors. These results are generally consistent with our intuition. For example, it takes longer to resolve deals involving public targets, which are subject to SEC regulations, exposed to more litigation risk, and generally more complex. Intra-industry deals take longer to resolve because they sometimes require anti-trust clearance from the Department of Justice or the Federal Trade Commission. Managers involved in intra-industry deals also tend to be more knowledgeable about their counterparties and may have more issues to haggle over during the M&A process. Tender offers are resolved more quickly because acquirers bypass management and boards of public targets to make offers directly to shareholders. Similarly, stock deals

[8] The magnitude is unreasonably large in the 2SLS regression.

involve more uncertainty for the target, and deals advised by top advisors or by multiple advisors likely involve more due diligence, and hence take longer to complete.

6.3 Common advisors and deal quality

We next examine the effect of common advisors on deal quality. As discussed in section 3 above, the conflict of interest hypothesis predicts that common advisor deals will be of lower quality, while the deal improvement hypothesis makes the opposite prediction. To measure deal quality, we examine whether a deal creates value over the short-term and long-term for the shareholders of acquirers and targets. For acquisitions of public targets, we compute the *CCAR* around acquisition announcement dates to measure the short-term value that an acquisition creates for both targets and acquirers [see, e.g., Bradley, Desai, and Kim (1988) and Kale, Kini, and Ryan (2003)]. *CCAR* equals the combined cumulative abnormal return on the stocks of the acquirer and the target over trading days (-20, +5). Following Rau and Vermaelen (1998), we measure long-term value creation using the post-acquisition performance of the acquirer's stock over the three-year period following the year of acquisition.

Table 6 reports the results of OLS, treatment effect and 2SLS regressions of *CCAR* and post-acquisition stock performance. The main explanatory variable of interest is the dummy variable for common advisor. We control for relative size, deal value, target's operating performance (OPA) and financial leverage, and dummy variables for high-tech target, high-tech acquirer, public target, tender offer, same industry, stock payment, whether both parties have prior relations with their M&A advisors, whether each party uses a top 5 advisor, and whether each party uses multiple advisors. The regression also includes year dummies.

In OLS regressions, the coefficient of common advisor is statistically insignificant in regressions of both short-run and long-run measures of deal quality. In treatment effect models, the coefficient for *Lambda* is statistically insignificant, suggesting that endogenous selection of common advisors is not a concern in this context. In any case, the results are quite similar across OLS and treatment effect models. In 2SLS regressions, the p-value of the test for endogeneity is less than .01 (greater than .1) in the regression of CCAR (post-acquisition performance). But the coefficient of common advisor is statistically insignificant in both 2SLS regressions. Similarly, rows 2 and 3 of Table 10 show that the ATTs of common advisor are statistically insignificant for all four matching methods for both measures of deal quality. In sum, we find no evidence that

having a common advisor is detrimental to the short- and long-term value that a deal creates for the shareholders of the combined company.[9] Our results also provide no evidence that common advisors improve deal quality.

In Table 6, the combined short-term shareholder gain from the acquisition is higher in tender-offers, and increases with the deal's relative size; it is lower in stock deals and deals where both parties have prior relations with their advisors. These results are generally consistent with prior research [see, e.g., Fan and Goyal (2006), and Bradley, Desai, and Kim (1988)].

6.4 Common advisors and target valuations and premiums

We next examine how sharing an advisor affects a target's valuation in an acquisition. We measure valuations using two acquisition multiples, computed by dividing deal value by the target firm's sales or EBITDA.[10] Following Bhojraj and Lee (2002), we control for industry valuations. For each year in the sample, we start by computing the ratios of market capitalization to sales or EBITDA for each publicly traded firm on Compustat. We then sort firms by the first two digits of their primary SIC codes, and determine for each industry-year the median value of each valuation ratio as a measure of the industry's valuation. The industry valuations are denoted *Industry market-to-sales* and *Industry market-to-EBITDA*. The regressions also control for a target's operating performance, *Target OPA*, measured as EBITDA divided by total assets for the target's last fiscal year ending before the acquisition. Due to the regression-to-the-mean phenomenon of operating performance, whereby a lower prior operating performance eventually rises toward its mean value, we expect a negative relation between deal valuations and a target's prior operating performance. The other explanatory variables are largely similar to those used in the deal-quality regressions of Table 6. The regression also includes dummy variables for the year of announcement and for the target's one-digit primary SIC code industry. Valuation multiples are winsorized at the bottom and top 1% of the distribution to reduce the effect of outliers.

Table 7 presents the results of regressions for both valuation multiples. In treatment effect regressions of Deal value/Sales, the coefficient of Lambda is statistically significant, as is the test

[9] Our results on long-run deal quality are similar to these when we calculate the post-acquisition stock performance over one or two years instead of three years; we do not tabulate them for brevity.

[10] The results (untabulated) are similar when we divide deal value by book equity or net earnings.

of endogeneity in 2SLS regressions. Both imply that these regressions should be preferred to OLS. The coefficient estimate of common advisor is negative in both treatment effect and 2SLS regressions, and statistically significant in the latter. In regressions of Deal value/EBITDA, the coefficient of Lambda is insignificant in the treatment effect model, as is the test of endogeneity in 2SLS regressions. Both imply that OLS should be preferred. The coefficient of common advisor is significantly negative in OLS. Similarly, rows 4 and 5 in Table 10 show that the ATT of Deal value/Sales is insignificant, while the ATT of Deal value/EBITDA is significantly negative for common advisor deals under both PSM approaches. Together, the results for the two deal valuation multiples suggest that common advisors lead to deals with lower target valuations. The magnitude of this effect for Deal value/EBITDA ranges from about 5.7 in OLS to 6.3 under PSM, or about 18% of its sample mean of 34.12. This evidence favors the conflict of interest hypothesis that common advisors favor acquirers at the expense of targets.

Deal valuations increase with industry valuations, deal size and relative advisor reputation, and are higher in stock deals and deals within the same industry; they decrease with the relative size of the deal and the target's prior operating performance (OPA), and are lower in deals with public targets and deals where either party has a prior relationship with the counterparty's advisor.

For deals involving public targets, we also compute acquisition premiums and target announcement returns (CAR) as direct measures of the premiums paid to targets as defined in section 4.2 above. Table 8 shows the results from regressions of *Acquisition premium* and *Target CAR (-1, +1)*. Again, our main explanatory variable of interest is the binary variable, *Common advisor*. We control for deal value, relative deal size, CCAR, target's prior operating performance (OPA), target's financial leverage, relative advisor reputation, and include the binary variables *High-tech acquirer*, *High-tech target*, *Target is public*, *Tender offer*, *Same industry*, *Acquirer pays with stock*, and dummy variables for whether each party has a prior relationship with its and the counter-party's advisor. The regression also includes year dummies and industry dummies. Acquisition premium is winsorized at the bottom and top 1% of the distribution to reduce the effect of outliers.

In regressions of *Acquisition premium*, the coefficient of *Lambda* is insignificant in the treatment effect model as is the test for endogeneity in 2SLS. Both imply that OLS should be preferred. The coefficient estimate of *Common advisor* is negative and statistically significant in

OLS. Similarly in Table 10, the ATT of common advisors is negative for acquisition premiums under all four matching methods, and is statistically significant under two of the methods. Consistent with the deal valuation evidence above, this result suggests that the use of common advisors results in lower acquisition premiums for targets. The estimated magnitudes of this effect are quite large, about 21% in the OLS regression and between 19% and 25% in the matching methods. This evidence favors the conflict of interest hypothesis about common advisors' role in M&As.

In OLS regressions, the acquisition premium increases with deal size and combined announcement returns (CCAR); it decreases with targets' prior operating performance, and is lower in tender offers, stock deals, and in deals where the acquirer has a prior relationship with the target's advisor.

In regressions of *Target CAR over days (-1, +1)* in Table 8, the coefficient estimates for *Common advisor* are statistically insignificant in all three models, as are the ATTs under all four matching methods in Table 10.[11] Target CARs increase with the combined CAR, and are higher in tender-offers; they decrease with the deal's relative size, and are lower in stock deals, and in deals where the acquirer has a prior relationship with its advisor.

6.5 Common advisors and acquirer announcement returns

Finally, we investigate the impact of common advisors on acquirers' announcement returns. We do this analysis for completeness, rather than to distinguish between the two hypotheses about common advisors. Both hypotheses predict that common advisors should be beneficial to acquirers. Under the conflict of interest hypothesis, common advisors favor acquirer over targets, implying higher acquirer CARs in such deals than in deals without common advisors. Under the deal improvement hypothesis, common advisors use their information advantage to facilitate better quality deals, which also implies higher acquirer CARs in such deals than in deals with separate advisors.

Table 9 shows results of regressions of acquirer CARs over days (-1, +1) around the announcement.[12] Our main explanatory variable of interest is the binary variable, *Common advisor*. We control for deal value, relative deal size, industry M&A activity, acquirer stock

[11] Untabulated results are similar to these for target CARs over days (-5,+5) and (-20,+5).

[12] Untabulated results are similar to these for acquirer CARs over days (-5, +5) and (-20, +5).

volatility, target industry market cap/BV, relative advisor reputation, and include the binary variables *High-tech acquirer*, *High-tech target*, *Target is public*, *Tender offer*, *Same industry*, *Acquirer pays with stock*, S*tock * Public target,* and dummy variables for whether each party has a prior relationship with its and the counter-party's advisor. The regression also includes year dummies.

Table 9 provides some evidence that acquirer CARs are higher in deals with common advisors. In the treatment effect regression, the coefficient estimate of Lambda is statistically significant, implying that this regression should be preferred to OLS. The negative coefficient estimate of Lambda implies that variables that lead the two parties to pick a common M&A advisor are related to lower acquirer CARs. After controlling for this selectivity effect, the coefficient of *Common advisor* is a statistically significant 0.059 (with a p value of .06) in the treatment effect regression, implying that acquirer CAR is 5.9% higher in deals with common advisors. In the 2SLS regression, the large p-value of the endogeneity test suggests that this model is inappropriate here. The ATTs of common advisor presence, shown in the last row of Table 10, are positive under all four matching methods, although statistically insignificant. Acquirer CARs increase with the relative size of the deal, acquirer stock volatility and valuations in the target's industry, and are higher in tender offers and in deals where the acquirer has a prior relationship with its advisor; they decrease with deal size, and are lower where either party is a high-tech firm, the target is public (especially in stock deals), and in deals where the target has a prior relationship with its advisor.

Finally, a common adviser's incentive to favor the acquirer should be less in deals where the target is a subsidiary of a parent company that will continue to exist post-merger. The advisor's incentive to get future IB business from the parent would reduce their incentive to favor the bidder over the target. We examine this issue by adding the interaction term Common adviser*Sub in un-tabulated regressions of acquirer CAR similar to those in Table 9, where Sub is a dummy variable that equals one if the target firm is a subsidiary of another company, and equals zero otherwise. A negative coefficient on the interaction term would support the conflict of interest hypothesis, with the advisor's incentive to favor the acquirer being reduced by the potential for future IB business with the target's prior parent company. The deal improvement hypothesis predicts a zero coefficient on this interaction term because a common advisor's ability to improve a deal should not be affected by whether or not the target is a subsidiary of

another firm. In the treatment effect regression, we find that the coefficient estimate of this interaction term is negative as predicted by the conflict of interest hypothesis, but with a t-statistic of -1.5, at best it provides only weak support for the notion that the advisor's conflict is lower in takeovers of subsidiaries. The coefficient of common advisor is slightly bigger at 0.066 and now has a slightly larger t-statistic of 2.10, consistent with the conflict of interest hypothesis in general.

7. Why Do Targets Agree to Share Advisors?

We find in sections 6.4 and 6.5 above that on average, deals with common advisors work out better for acquirers (who experience higher abnormal returns upon deal announcement) than for targets (who receive lower deal valuations and bid premiums). Why then do targets agree to share advisors with acquirers? Well, a priori, it is unclear whether common advisors will respond to their incentive to favor acquirers over targets in the face of advisors' reputational and litigation concerns, and the benefit from potential deal improvement may outweigh any cost to targets from adverse incentives of common advisors. And target firms appear to learn over time.[13] Two pieces of evidence support this conjecture. First, Panel A of Table 1 shows that the proportion of deals that use common advisors out of all deals has gone down over our 25-year sample period, from about 4.9% during the 1980s to 1.1% during the 1990s to a negligible 0.4% during the 2000s. F-tests for the equality of this proportion across the three decades and across all the years in our sample both have p-values of less than .001. The F-statistic is computed by estimating an OLS regression of the common advisor dummy on year or decade dummies using the 6,272 deal observations in our sample.

Second, we try to get a sense for whether merging firms avoid sharing advisors by comparing the actual probability of common advisor deals to the predicted probability of such deals assuming purely random choice of advisors by acquirers and targets.[14] A finding that firms avoid (seek out) [neither avoid nor seek out] common advisors would suggest that the conflict of interest (deal improvement) [neither] hypothesis dominates. The actual probability is the observed proportion of deals with common advisors during a year. Assuming that advisors have

[13] See Bebchuk, Cohen and Wang (2012) for a similar explanation of why the relation between governance indices and stock returns disappears as investors learn about it.

[14] This analysis was suggested by Paul Pecorino.

many clients, the predicted probability from random pairing of advisors to clients is the sum of squared M&A market shares for all advisors during the year.[15] To see this, consider a simple M&A advisory market with just two advisors with market shares of 0.4 and 0.6 in a given year. Then an acquirer who hires advisor 1 (which happens with probability 0.4) faces a 0.4 probability that the target will hire the same advisor. So the probability of advisor 1 being a common advisor is $(.4)^2$. Similarly, the probability of advisor 2 being a common advisor is $(.6)^2$. So the probability of deals with a common advisor in this market is $(.4)^2 + (.6)^2$.

To compute the predicted probability, we calculate each advisor's market share based on the number of deals it advised during a given year. An advisor gets credit for 0.5 deals for being the sole advisor for one side of a deal. If one party is advised by multiple advisors, each co-advisor is assigned equal partial credit for the deal (e.g., in a merger where there is one advisor on the acquirer side and two advisors on the target side, the acquirer's advisor gets credit for 0.5 deals and each target co-advisor gets credit for 0.25 deals). The sum of the market shares of all advisors in a given year equals one. We then compute the predicted probability of common advisor deals for the year as the sum of squared market shares for all advisors. We repeat this process for each year in our sample to compute the predicted annual probabilities. We then compute the predicted probability for a given decade (the entire sample) as the weighted average of the annual probabilities of common advisors, where weights are based on the proportion of the number of deals in a year out of all the deals over the decade (the entire sample).

Table 11 shows the actual (a) and predicted (b) probabilities of common advisor deals for each year in the sample, followed by each decade and for the overall sample. Column 4 shows the deviation between the predicted and actual probabilities [(b) – (a)] and the last column shows p-values from a two-tailed test of the equality of the actual and predicted probabilities. For the full sample, the deviation is a statistically significant 2.4%, suggesting that merging firms avoid common advisor deals, on average. This finding supports the conflict of interest hypothesis over the deal improvement hypothesis. All except three of the 25 yearly deviations are positive, i.e., predicted probability of common advisor deals consistently exceeds the observed probability. From 1990 to 2005, the deviations are statistically significant in all except three of the years. For the 1980s, the deviation is small (0.5%) and statistically insignificant, consistent with the parties not avoiding common advisor deals during this period. The deviation increases to 2.4% during

[15] Interestingly, the predicted probability equals the Herfindahl index of market share concentration among advisors.

the 1990s and to 3.2% during the 2000s; both are statistically significant. The last three rows in the table show p-values from two-tailed tests of equality of the deviations between two decades. The increase in the deviation from the 1980s to 1990s is significant at the .01 level, and the increase from 1990s to 2000s is significant at the .10 level; the increase from 1980s to 2000s is highly significant. Overall, these results suggest that while merging firms did not avoid common advisor deals during the 1980s, they did so actively during the 1990s and 2000s. As target firms realized that they get the short end of the stick in common advisor deals, they start to avoid them.

8. Conclusion

A common M&A advisor has an incentive to hasten deals at the expense of deal quality, and to favor the acquirer at the expense of the target. We call this the conflict of interest hypothesis. But the advisor may be deterred from responding to these incentives because of its concerns about reputation and the risk of litigation. At the same time, the advisor can use its access to relevant information about both parties to improve deal outcomes. This is the deal improvement hypothesis. In this paper, we seek to distinguish between these two competing, non-mutually exclusive hypotheses to identify the dominant hypothesis.

We examine the determinants of two firms' choice of a common or separate M&A advisor, and the consequences of this choice on several deal outcomes such as the speed of deal completion, deal quality, target valuation multiples, bid premiums, and announcement returns to targets and acquirers. We analyze a sample of 6,272 acquisitions announced during 1981-2005 and account for the endogenous choice of common or separate advisors using several econometric methodologies.

We find that common advisors appear to be chosen in ways that make economic sense. They are more likely to be picked in deals that are smaller, involve private targets, use common stock for payment, and have larger relative size; deals where the parties use multiple advisors, use top advisors, and have prior IB relationships with the counter-party's (but not their own) advisors; and deals where a larger number of IBs specialize in the industry of both target and acquirer. After controlling for other variables, deals with common advisors take longer to complete, have lower valuations, lower premiums, and higher announcement returns to acquirers than deals with separate advisors. The magnitudes of these effects are quite substantial. For example, in common advisor deals, deal valuation (measured by Deal value/EBITDA) is lower

by about 6 compared to the sample mean of 34.12, bid premiums are lower by about 22%, and 3-day announcement abnormal returns to acquirers are higher by about 6%. There is little difference between the two types of deals in measures of deal quality (combined announcement returns and post-acquisition performance).

Our evidence that common advisor arrangements turn out to be better for acquirers than for targets favors the conflict of interest hypothesis over the deal improvement hypothesis about the role of common advisors in mergers and acquisitions. Why then do targets agree to share advisors? We present two pieces of evidence that suggest that target firms learn over time. First, the proportion of deals with common advisors goes down substantially over the 25 year period of our study, from about 4.9% during the 1980s to 1.1% during the 1990s to a negligible 0.4% during the 2000s. Second, comparing the observed probability of common advisor deals to the predicted probability based on random pairing of advisors and clients, we find no evidence that merging firms avoided common advisors during the 1980s, but strong and growing evidence of such avoidance during the ensuing two decades.

Appendix 1

Treatment of Endogeneity

We use four different methodologies to reduce concerns about the endogeneity of common advisor choice. These are: (1) Heckman's two-stage treatment effect model, (2) two-stage least squares (2SLS) regressions, (3) propensity score matching (PSM), and (4) Abadie and Imbens matching (AIM). Here, we describe these methodologies, their implementation, and our instrumental variables (IVs) for the first two of these approaches that require the use of IVs.

First, we use Heckman's two-stage treatment effect model [see, e.g. Maddala (1983) pp. 120-122, and Heckman (1979)]. This model consists of a treatment equation and a main equation where the dependent variable is deal outcome. Having a common advisor is the outcome of an unobserved, latent variable that we denote as *Common Advisor**. To estimate the likelihood that an acquisition has a common advisor, we use the probit model

$$\text{Common advisor}_i = 1 \text{ if Common advisor}_i^* = \omega Z_i + u_i > 0, \quad (3a)$$

$$\text{Common advisor}_i = 0 \text{ if Common advisor}_i^* = \omega Z_i + u_i \leq 0, \quad (3b)$$

where *Z* is a vector of independent variables that influence the target and acquiring firms' decision to use a common advisor. The probit model is the treatment equation. The regression model of primary interest is

$$\text{Outcome}_i = \alpha + \beta \text{ Common advisor}_i + \delta X_i + \varepsilon_i, \quad (4)$$

where *Outcome* measures the outcome of an M&A transaction, *Common advisor* is a binary variable that equals one (zero) for an acquisition with (without) a common advisor, and the vector *X* controls for other determinates of M&A outcomes. We add the inverse Mills ratio (*Lambda*), computed using the first-stage probit regression, as a covariate in the second-stage regression to control for any selection bias; its t-statistic also provides a test of whether a selection bias exists.

Second, we use two-stage least squares (2SLS) estimation to account for unobservable omitted variables. Here, we use the linear probability model (LPM) for the first stage regression because the potential endogenous variable is binary.[16] Using LPM for the first-stage regression generates consistent second-stage estimates even with a binary endogenous variable (Angrist and

[16] Using a non-linear model, such as the probit model, for the first stage is a forbidden regression (see, e.g., Angrist and Pischke (2009)).

Krueger (2001)). While the 2SLS estimator is not unbiased, it is consistent; and having a large sample makes the 2SLS results more reliable. We test for exogeneity using the Durbin-Wu-Hausman test, which examines the statistical difference between OLS and 2SLS coefficient estimates of the suspect endogenous variable. In regressions with two IVs, we are also able to conduct an over-identification test. Bound, Jeager and Baker (1995) caution about weak instruments and suggest that one should not rely solely on the over-identifying restriction. Staiger and Stock (1997) suggest that the F-statistic of the IVs used in the first-stage regression should be reasonably high (more than 10). In our 2SLS estimations that use multiple IVs, this F-statistic is higher than 10.

Both the treatment effect and 2SLS models require the use of IVs to identify the choice of a common advisor. We use two IVs: (1) *Ln(# of IBs specializing in both industries + 1)* and (2) the dummy variable *Both parties use multiple advisors*. We use the first IV for the speed of deal completion (Table 5) and deal quality (Table 6), both IVs for target valuation multiples (Table 7), and the second IV for acquisition premiums and announcement returns to targets (Table 8) and acquirers (Table 9). For IVs to be valid, they must satisfy two conditions. First, they must satisfy the relevance criterion, i.e., belong in the first-stage equation. As we discuss in section 5 above, there are good *a priori* reasons to expect both IVs to belong in the first-stage equation. Empirically, we find both to significantly affect the choice of a common advisor in Table 4. Second, the IVs must meet the exclusion restriction, i.e., not belong in the second-stage equation. The number of IBs specializing in the industries of both the target and acquirer[17] is a characteristic of the merger advisory business prevalent at the time of a given deal that should not affect the outcomes of individual deals. Similarly, the use of multiple advisors by both sides of a deal should not affect those aspects of the deal that involve *sharing* of the total gain between the two parties, which is necessarily a zero-sum game. As discussed in section 5 above, using a separate advisor in addition to a common advisor can reduce a merging firm's concern about the conflict inherent in a common advisor. If both parties protect themselves by using separate advisors, in addition to the common one, the sharing of gains from the deal should not be

[17] In Appendix Table A.1, we define *# of IBs specializing in both industries* as the number of IBs which have served as M&A advisors in the primary 2-digit SIC industries of both the target and acquirer over the five years before the acquisition announcement. While the choice of the prior five years to define this IV is admittedly arbitrary, our results are quite similar if we define it based on the prior three or seven years instead. The results are also similar when we define this variable as the number of IBs which have M&A advisory market share of at least 5% based on the value of all merger deals on SDC over the prior three, five or seven years in the industries of both target and acquirer.

affected by the choice of a common advisor. While the first IV also does not belong as a covariate in the regressions of Tables 8 and 9 and thus satisfies the exclusion restriction, we do not use it as an IV in those regressions because it does not pass the over-identification test.

The third and fourth methods we use are propensity score matching (PSM) and Abadie and Imbens matching (AIM) to reduce the selection bias based on observables and estimate the average treatment effect for the treated (ATT). With the assumption of conditional independence, an appropriate control group of untreated observations can be the proxy for unobserved potential outcomes without any resulting bias. To achieve this end, Rosenbaum and Rubin (1983) suggest using a balancing score computed as a function of observable covariates, X, such that the conditional distribution of X given the balancing score is independent. PSM, the probability of participating in the treatment given observable variables X, is one such balancing score. Similarly, Abadie and Imbens (2006, 2007) develop a simple and a bias-corrected matching estimator, where assignment to the treatment is exogenous, conditional on a set of control variables.

Merging firms decide to use a common advisor based on some observable firm, deal and IB characteristics. This makes both AIM and PSM approaches appropriate methods for estimating ATT and controlling for selection bias. ATT is estimated from the difference between the actual mean of the treated and its counterfactual mean. We estimate the counterfactual mean using either AIM or PSM, and use the following methods: 1) Simple matching, 2) Bias-corrected matching, 3) Radius caliper matching, and 4) Kernel matching. The first two are based on the AIM method and the last two are based on the PSM method.[18] For both AIM methods, we match the treated observation with a maximum of four nearest neighbors from untreated observations, and match with replacement. We use the procedure suggested by Abadie et al. (2004) to estimate the ATT for both simple matching and bias-corrected matching.

[18] See Imbens (2004) and Caliendo and Kopeinig (2008) for discussions of these methods. Çolak and Whited (2006) provide an excellent exposition of the simple and bias-corrected AIM estimators developed in Abadie and Imbens (2006, 2007).

Using a tolerance level on the maximum propensity score distance (caliper), radius caliper matching matches all the observations in the control group within the caliper. This helps avoid the risk of bad matches when the nearest neighbor is not too near, and at the same time, uses as many matches as the caliper allows. We use a caliper of 0.02. Kernel matching, on the other hand, uses weighted averages of all observations in the control group to estimate counterfactual outcomes. The weight is calculated by the propensity score distance between a treatment case and all control cases. We set the bandwidth at 0.06 and use Epanechnikov kernel for matching. For both of these methods, we impose common support restriction and estimate standard errors using 100 bootstrapped replications. Matching is done with replacement. We use Leuven and Sianesi's (2003) procedures to estimate the ATT for both radius caliper and kernel matching.

Appendix 2

Choice-based sample

Clearly, having a common M&A advisor is a rare event: such deals comprise less than 1.6% of our sample. We estimate a model with a binary dependent variable representing the choice of common advisors versus separate advisors. Binary dependent variable models, such as the probit or logit models, tend to underestimate the probabilities of rare events [see, e.g., King, Tomz, and Zeng (2003) and King and Zeng (2001)]. We deal here with the possibility that our inferences about the impact of common advisors are affected by this underestimation. We follow the previous literature analyzing the probabilities of rare events[19] and use choice-based sampling to oversample deals with common advisors, keeping all common advisor deals and randomly selecting 402 deals from the 6,174 acquisitions without common advisors.

While choice-based-sampling increases the explanatory power of the first-stage probit regression, it can lead to biased coefficient estimates. We use the weighted exogenous-sample maximum likelihood (WESML) procedure to minimize the effects of any bias arising from oversampling [see, e.g., Beneish (1999); Zmijewski (1984); and Bettis, Bizjak, Coles, and Kalpathy (2010)]. The WESML procedure applies a weight to each observation to account for the fact that the probability of observing a deal with or without a common advisor in our sample is different from that in the population [Zmijewski (1984)].

[19] See Palepu (1986) and Espahbodi and Espahbodi (2003) for takeover targets; Dopuch, Holthausen, and Leftwich (1987) for audit qualifications; Beneish (1999) for federal charges against managers for GAAP violations; and Zmijewski (1984) for bankruptcies.

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Appendix Table A.1: Variable definition

Variable	Definition
Panel A: Deal outcome variables	
Days to deal resolution	Number of days from the announcement of a deal to its completion or withdrawal
Deal value to Sales, Book value of stockholders' equity, EBITDA, or Net income.	Deal value to Sales (or Book value of stockholders' equity or EIBTDA or Net earnings) from the target's last fiscal year ending before the deal announcement; then divide the resulting value by the proportion of the target's shares purchased by the acquirer.
Acquisition premium	[(Deal value / Target's market value of equity forty trading days before the acquisition announcement) -1] * 100
Target (acquirer) CAR	Target (acquirer) firm's cumulative abnormal return (CAR) is the sum of daily abnormal returns over trading window (t_1, t_2), where day 0 is the announcement date. The abnormal return for day t equals the rate of return on a firm's common stock on day t minus the equal-weighted market index return for day t.
CCAR	Combined cumulative abnormal return (CCAR) equals the weighted average of the daily abnormal returns of an acquirer and target over trading-day window (-20, +5); weights are based on the market capitalizations of acquirer and target, measured twenty-one days before the announcement date.
Acquirer's proportional gain	Combined wealth gain equals the sum of Target wealth gain[20] and Acquirer wealth gain[21]. If Combined wealth gain >0, Acquirer's proportional gain = Acquirer wealth gain / Combined wealth gain. If Combined wealth gain <0, Acquirer's proportional gain = 1 - Acquirer wealth gain/Combined wealth gain.
Post-acquisition Performance (+1, +36)	The estimated intercept from the Carhart (1997) four-factor model regressing the acquirer's monthly stock returns for months +1 to +36 after the deal announcement month on the three Fama-French (1993) factors and a momentum factor.
Panel B: Firm characteristics	
Target's OPA	Target's EBITDA divided by total assets for the fiscal year prior to the acquisition announcement.
Target's leverage	Target's total debt divided by total assets for the fiscal year prior to the acquisition announcement.
Acquirer market value	The number of shares outstanding multiplied by the share price measured six trading days before the announcement date of the acquisition ($ millions)
High-tech target (acquirer)	A dummy variable that equals one if a target (acquirer) is classified as a high-tech firm according to Loughran and Ritter (2004), and equals zero otherwise.
Acquirer stock volatility	The standard deviation of acquirer's abnormal daily returns over trading-day window (-205, -6). The acquirer's abnormal return for day t equals the rate of return on its common stock on day t minus the value-weighted market index return on day t.

[20] Target wealth gain = $\begin{pmatrix}\text{Target market value}\\ \text{at trading day t = -21}\end{pmatrix}\begin{pmatrix}\text{Target}\\ \text{CAR}(-20,+5)\end{pmatrix}(1 - \text{Acquirer's Toehold})$

[21] Acquirer wealth gain = $\begin{pmatrix}\text{Acquirer market value}\\ \text{at trading day t = -21}\end{pmatrix}\begin{pmatrix}\text{Acquirer}\\ \text{CAR}(-20,+5)\end{pmatrix}$

Appendix Table A.1 (cont'd)

Panel C: Deal characteristics	
Common advisor	A dummy variable that equals one if a target and acquirer use the same investment bank (IB) as their M&A advisor, and equals zero otherwise.
Deal value	The amount paid by the acquirer for the target, excluding target liabilities assumed by the acquirer ($millions)
Relative size	Deal value divided by the market value of equity of the acquirer
Market share of target's (acquirer's) advisor	Total value of M&A deals advised by the target's (acquirer's) advisor during the year prior to the acquisition, divided by the total value of all M&A deals during that year.
Relative advisor reputation	Market share of acquirer's advisor minus market share of target's advisor
Target has pre-deal relationship with acquirer's (its) advisor	A dummy variable that equals one if the acquirer's (target's) current advisor advised the target in an M&A transaction or underwrote security offerings over a 5-year period before the current acquisition announcement, and equals zero otherwise.
Acquirer has pre-deal relationship with its (target's) advisor	A dummy variable that equals one if the acquirer's (target's) current advisor advised the acquirer in an M&A transaction or underwrote security offerings over a 5-year period before the current acquisition announcement, and equals zero otherwise.
Target is public	A dummy variable that equals one if the target firm has publicly traded common stock, and equals zero otherwise.
Tender offer	A dummy variable that equals one if the acquirer bypasses the management and board of directors of a public target to make an offer directly to its shareholders, and equals zero otherwise.
Same industry	A dummy variable that equals one if the acquirer and target have the same two-digit SIC industry code, and equals zero otherwise.
Acquirer pays with stock	A dummy variable that equals one if target shareholders receive acquirer stock when selling their target shares, and equals zero otherwise.
Target (Acquirer) has multiple advisors	A dummy variable that equals one if more than one IB is advising the target (acquirer), and equals zero otherwise.
Target (Acquirer) advised by a top 5 advisor	A dummy variable that equals one if the target (acquirer) is advised by a top 5 advisor based on prior year M&A market share, and equals zero otherwise.
Both parties have prior relations with their advisors	A dummy variable that equals one if both the target and acquirer have prior IB relationship with their own advisors, and equals zero otherwise.
Both parties advised by a top 5 advisor	A dummy variable that equals one if both the target and acquirer are advised by top-5 advisors, and equals zero otherwise.
Both parties use multiple advisors	A dummy variable that equals one if both the target and acquirer use multiple advisors, and equals zero otherwise.
# of IBs specializing in both industries	Number of IBs which have served as M&A advisors in the two-digit primary SIC industries of both the target and acquirer over the five years before the acquisition announcement.
Target industry median Market cap/Sales, Market cap/EBITDA, or Market cap/BV	The median ratio of the market value of equity to sales, EBITDA or book value of equity for all Compustat firms in the target's 2-digit primary SIC code industry in the acquisition announcement year.
Industry M&A activity	The total value of all M&A deals in the target's 2-digit primary SIC code industry during the year before the acquisition announcement, divided by the total market value of equity of all Compustat firms in the industry during the year.

Table 1

Sample distribution

The sample consists of 6,272 acquisitions reported by SDC for the period 1981-2005 in which both the target and acquiring firms hire at least one M&A financial advisor. *With* (*Without*) *common advisor* group consists of transactions where the same (different) investment bank(s) advises the acquirer and target. Panel A shows the sample distribution of M&A transactions by the year (decade) of deal announcement. The p-value of the F-test is for the equality of the proportion across the years (decades). Panel B shows the industry distributions of targets and acquirers for deals with common and separate advisors. The grouping of two-digit SIC codes follows Song and Walkling (1993).

Panel A: Distribution by year

	Number of deals		% of deals
Year	Common advisor	Total	with Common advisor
1981	1	62	1.61
1982	4	60	6.67
1983	4	83	4.82
1984	6	100	6.00
1985	7	135	5.19
1986	10	183	5.46
1987	11	163	6.75
1988	3	150	2.00
1989	8	161	4.97
1990	0	104	0.00
1991	1	80	1.25
1992	3	118	2.54
1993	2	185	1.08
1994	5	257	1.95
1995	1	327	0.31
1996	4	404	0.99
1997	8	551	1.45
1998	5	557	0.9
1999	6	539	1.11
2000	4	518	0.77
2001	3	359	0.84
2002	0	262	0.00
2003	0	262	0.00
2004	0	322	0.00
2005	2	330	0.61
F-test across all years (p-value)			0.00
1981-1989	54	1,097	4.92
1990-1999	35	3,122	1.12
2000-2005	9	2053	0.44
F-test across the three decades (p-value)			0.00
Total	98	6,272	1.56

Table 1 (cont'd)

Panel B: Industry distributions of targets and acquirers

Industry (two-digit SIC codes)	Targets			Acquirers		
	Number of deals		% of deals with Common advisor	Number of deals		% of deals with Common advisor
	Common advisor	Total		Common advisor	Total	
Agriculture (01-09)	0	13	0.00	0	10	0.00
Mining (10-14)	2	217	0.92	2	240	0.83
Construction (15-19)	0	33	0.00	0	36	0.00
Food and tobacco (20-21)	1	129	0.78	2	128	1.56
Textiles and apparel (22-23)	0	59	0.00	3	63	4.76
Lumber, furniture, paper, and print (24-27)	4	179	2.23	5	207	2.42
Chemicals (28)	10	356	2.81	9	454	1.98
Petroleum, rubber, and plastics (29-30)	3	75	4.00	0	76	0.00
Leather, stone, glass (31-32)	0	48	0.00	1	58	1.72
Primary and fabricated metals (33-34)	2	135	1.48	2	135	1.48
Machinery (35-36)	6	651	0.92	7	646	1.08
Transport equipment (37)	2	107	1.87	2	149	1.34
Instruments and other manufacturing (38-39)	2	318	0.63	4	308	1.30
Transport, communications, utilities (40-49)	9	538	1.67	12	602	1.99
Wholesale trade (50-51)	3	172	1.74	3	125	2.40
Retail trade (52-59)	4	281	1.42	2	267	0.75
Finance, insurance, real estate (60-69)	32	1,623	1.97	29	1,649	1.76
Hotels and personal services (70-71)	2	64	3.13	2	40	5.00
Services (72-89)	16	1,271	1.26	13	1,077	1.21
Public administration and others (90-99)	0	3	0.00	0	2	0.00
Total	98	6,272	1.56	98	6,272	1.56

Table 2

Characteristics of advisors and deals

The sample consists of 6,272 acquisitions reported by SDC for the period 1981-2005 in which both the target and acquiring firms hire at least one M&A financial advisor. Panel A shows the characteristics of the investment banks (IBs) that serve as M&A advisors to the targets and acquirers, and Panel B reports descriptive statistics for the M&A transactions. Acquisitions *With* (*Without*) *common advisors* are deals where the same (different) IB(s) advises the acquirer and target. For a given acquisition, the advising IB's market share equals the value of deals advised by it during the year prior to the acquisition divided by the total value of all deals during that year. For each year in our sample period, we rank all M&A advisors by market share. Following Rau (2000), we classify the top five IBs as top tier, the next 15 as second-tier, and the remaining IBs as third tier. If more than one IB advises an acquirer or target, we select the IB having the largest market share for the year prior to the acquisition year. Fees paid to the M&A advisors have been adjusted for inflation and converted to 2005 dollars. Percentage of shares acquired is the number of shares purchased by the acquirer divided by the number of target shares outstanding before the acquisition. The p-value is from two-tailed t-tests for differences in means and from Wilcoxon rank-sum tests for differences in medians. All other variables are defined in Appendix Table A.1.

Panel A: IB characteristics

	Targets							Acquirers						
	Mean			Median			With /Without Sample sizes	Mean			Median			With /Without Sample sizes
	With common advisor	Without common advisor	p-value	With common advisor	Without common advisor	p-value		With common advisor	Without common advisor	p-value	With common advisor	Without common advisor	p-value	
Prior year market share (%)	7	8	0.357	1	2	0.029	98/6,174	7	7	0.813	2	4	0.081	98/6,174
Proportion of IBs that are:														
Top tier	0.31	0.32	0.723	-	-		98/6,174	0.35	0.30	0.320	-	-		98/6,174
Second tier	0.17	0.21	0.395	-	-		98/6,174	0.17	0.29	0.014	-	-		98/6,174
Third tier	0.52	0.47	0.306	-	-		98/6,174	0.48	0.41	0.189	-	-		98/6,174
Fee ($ million)	4.73	5.34	0.6826	1.38	2.49	0.090	30/2,658	3.00	4.35	0.374	1.52	1.87	0.232	21/1,602

Table 2 (cont'd)

Panel B: Deal characteristics

	Mean			Median			With/ Without Sample sizes
	With common advisor	Without common advisor	p-value	With common advisor	Without common advisor	p-value	
Proportion of deals with > 1 advisor							
Targets	0.33	0.15	0.000	-	-		98/6,174
Acquirers	0.38	0.13	0.000	-	-		98/6,174
Number of advisors used in deal by							
Targets	1.39	1.18	0.000	1	1	0.000	98/6,174
Acquirers	1.39	1.15	0.000	1	1	0.000	98/6,174
Proportion of deals that were:							
Completed	0.95	0.998	0.000	-	-		98/6,174
Tender offers	0.07	0.13	0.085	-	-		
Within the same industry	0.65	0.61	0.393	-	-		98/6,174
Cash transactions	0.31	0.43	0.014	-	-		
Stock transactions	0.39	0.28	0.022	-	-		98/6,174
Target ownership (%)							
Public	40	54	0.005	-	-		
Private	26	22	0.346	-	-		98/6,174
Subsidiaries	35	24	0.018	-	-		98/6,174
Days to deal resolution	171	121	0.000	139	101	0.003	98/6,174
Percentage of shares acquired	99	99	0.895	100	100	0.964	98/6,174
Deal value ($ million)	982	1,179	0.682	166	256	0.001	98/6,174
Acquirer's market value ($ million)	3,011	8,152	0.099	632	1,182	0.000	89/5,468
Relative size	0.89	1.11	0.879	0.5	0.25	0.001	89/5,468

Table 3

Descriptive statistics of deal valuations, premiums, returns and performance

Panel A reports deal valuation multiples, acquirer CARs and post-acquisition performance for all acquisitions. The sample consists of 6,272 acquisitions reported by SDC for the period 1981- 2005 in which both target and acquirer hire at least one financial advisor. Panel B presents acquisition premia, CARs for targets and acquirers and combined CARs for the two firms for the subsample of acquisitions of public targets. The p-value is from two-tailed t-tests for differences in means and from Wilcoxon rank-sum tests for differences in medians. The variables are defined in Appendix Table A.1.

Panel A: All acquisitions							
	Mean			Median			With/ Without Sample size
	With common advisor	Without common advisor	p-value	With common advisor	Without common advisor	p-value	
Ratio of deal value to:							
Sales	8.35	22.81	0.835	1.35	1.77	0.144	66/4,036
Book value of stockholders' equity	29.53	41.58	0.904	2.44	3.00	0.134	51/3,216
EBITDA	10.62	34.45	0.688	7.64	8.40	0.460	43/3,073
Earnings	37.58	62.94	0.586	17.83	23.87	0.037	47/2,740
Acquirer CAR: (%)							
(-1, +1)	1.49	0.31	0.257	-0.34	-0.24	0.953	87/5,350
(-5, +5)	3.05	0.87	0.116	0.03	0.08	0.748	87/5,350
(-20, +5)	4.62	2.1	0.187	-0.23	1.01	0.434	87/5,350
Post-acquisition performance (+1, +36)	-0.21	0.02	0.833	0.15	0.14	0.865	87/5,439
Panel B: Acquisitions of public targets							
Acquisition premium (%)	41.84	79.41	0.644	38.22	48.7	0.021	36/3,029
Target CAR (%)							
(-1, +1)	16.09	19.33	0.385	13.5	15.14	0.268	36/3,029
(-5, +5)	16.74	22.52	0.152	16.22	18.97	0.106	36/3,030
(-20, +5)	18.37	27.23	0.051	12.06	23.81	0.014	36/3,030
Acquirer CAR (%)							
(-1, +1)	0.10	-1.60	0.201	-0.05	-1.19	0.228	36/2,976
(-5, +5)	0.33	-1.29	0.358	1.06	-1.20	0.273	36/2,976
(-20, +5)	-0.19	-0.05	0.956	-0.47	-0.49	0.655	36/2,976
CCAR (%)	1.89	2.91	0.679	1.63	2.92	0.408	34/2,706
Acquirer's proportional gain	-0.61	-0.77	0.913	0.22	0.08	0.988	34/2,707

Table 4

Determinants of having common advisors

The table shows marginal effects from probit models of the choice of common vs. separate advisors. The sample consists of 6,272 acquisitions reported by SDC for the period 1981- 2005 in which both target and acquirer hire at least one financial advisor. Marginal effects of the intercept and year dummies are not reported for brevity. Heteroskedasticity-consistent z-statistics are reported in parentheses below the marginal effect estimates. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively, in two-tailed tests. The variables are defined in Appendix Table A.1.

Independent variables	Predicted sign	Marginal effect	Marginal effect
		(1)	(2)
Ln(Relative size)	+	0.0006**	0.0012**
		(0.037)	(0.017)
Ln(Deal value)	-	-0.0020***	-0.0027***
		(0.000)	(0.000)
Target is public	-	-0.0038***	-0.0056***
		(0.000)	(0.000)
Tender offer	-	-0.0017	-0.0028
		(0.145)	(0.159)
Same industry	-	0.0003	0.0004
		(0.780)	(0.813)
Acquirer pays with stock	+	0.0031***	0.0044**
		(0.005)	(0.014)
Target has pre-deal relationship with acquirer's advisor over prior 5 years	+	0.0121***	
		(0.000)	
Target has pre-deal relationship with its advisor over prior 5 years	-	-0.0015*	
		(0.090)	
Acquirer has pre-deal relationship with its advisor over prior 5 years	-	-0.0012*	
		(0.087)	
Acquirer has pre-deal relationship with target's advisor over prior 5 years	+	0.0091***	
		(0.000)	
Target advised by a top 5 advisor	+	-0.0024**	
		(0.048)	
Acquirer advised by a top 5 advisor	+	-0.0004	
		(0.710)	
Both parties advised by a top 5 advisor	+	0.0132***	0.0093***
		(0.004)	(0.001)
Target has multiple advisors	+	0.0063***	
		(0.004)	
Acquirer has multiple advisors	+	0.0142***	
		(0.000)	
Both parties use multiple advisors	+	0.0091**	0.1325***
		(0.030)	(0.000)
Ln(# of IBs specializing in both industries + 1)	+	0.0014**	0.0025**
		(0.020)	(0.015)
Number of observations		5557	5557
Pseudo R-squared		0.300	0.235

Table 5

The impact of common advisors on the speed of deal completion

The table shows estimates of OLS, Heckman two-stage treatment effect, and instrumental variable two-stage least squares (2SLS) regressions of the natural logarithm of the number of days to deal resolution. The sample consists of 6,272 acquisitions reported by SDC for the period 1981- 2005, in which both the target and acquirer firms hire at least one financial advisor. For both treatment effect and 2SLS regressions, we use Ln(# of IBs specializing in both industries + 1) as the instrument. The second stage of treatment effect model uses the same covariates as the OLS and adds the inverse Mill's ratio (Lambda). Lambda is computed in the first stage of probit model (1) in Table 4. The second stage of the 2SLS regression uses the same covariates as the OLS, but instruments *Common advisor*. The p-value of the endogeneity test is based on Durbin-Wu-Hausman test. Coefficient estimates of the intercept and year dummies are not reported for brevity. Heteroskedasticity-consistent t-statistics are reported in parentheses below coefficient estimates; the p-value is reported for Lambda. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests. The variables are defined in Appendix Table A.1.

	Dependent variable		
	Ln(Days to deal resolution)		
Independent variables	OLS	Treatment effect	2SLS
Common advisor	0.098	0.467*	21.499**
	(1.112)	(1.701)	(1.983)
Ln(Relative size)	0.066***	0.065***	0.021
	(10.002)	(9.928)	(0.678)
Ln(Deal value)	0.003	0.006	0.159*
	(0.394)	(0.744)	(1.864)
Target is public	0.572***	0.576***	0.785***
	(25.228)	(25.843)	(6.025)
Tender offer	-0.496***	-0.492***	-0.273*
	(-15.857)	(-14.627)	(-1.702)
Same industry	0.127***	0.126***	0.023
	(6.250)	(6.257)	(0.242)
Acquirer pays with stock	0.080***	0.076***	-0.178
	(3.628)	(3.277)	(-1.121)
Both parties have prior relations	-0.025	-0.024	0.015
with their advisors	(-0.913)	(-0.702)	(0.116)
Top-5 target advisor	0.033	0.033	0.038
	(1.446)	(1.512)	(0.464)
Top-5 acquirer advisor	0.083***	0.081***	-0.046
	(3.886)	(3.725)	(-0.451)
Target has multiple advisors	0.079***	0.068**	-0.537*
	(2.898)	(2.376)	(-1.651)
Acquirer has multiple advisors	0.133***	0.118***	-0.751
	(4.375)	(3.719)	(-1.588)
Lambda		-0.176*	
		(0.081)	
Endogeneity test (p-value)			0.000
Number of observations	5557	5557	5557
Adjusted R-squared	0.228		

Table 6

The impact of common advisors on deal quality

This table shows the estimates of OLS, Heckman two-stage treatment effect, and instrumental variable two-stage least squares (2SLS) regressions of CCAR and post-acquisition stock performance. The sample consists of 6,272 acquisitions reported by SDC for the period 1981- 2005 in which both target and acquirer hire at least one financial advisor. For both treatment effect and 2SLS regressions, we use Ln(# of IBs specializing in both industries + 1) as the instrument. The second stage of treatment effect model uses the same covariates as the OLS and adds the inverse Mill's ratio (Lambda). Lambda is computed in the first stage of probit model (1) in Table 4. The second stage of the 2SLS regression uses the same covariates as the OLS, but instruments *Common advisor*. The p-value of the endogenity test is based on Durbin-Wu-Hausman test. Coefficient estimates of the intercept and year dummies are not reported for brevity. Heteroskedasticity-consistent t-statistics are reported in parentheses below coefficient estimates; the p-value is reported for Lambda. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests. The variables are defined in Appendix Table A.1.

	Dependent variables					
	CCAR			Post-acquisition stock performance		
Independent variables	OLS	Treatment effect	2SLS	OLS	Treatment effect	2SLS
Common advisor	-0.022	-0.083	-4.680	0.013	0.098	0.061
	(-0.919)	(-1.048)	(-0.987)	(0.813)	(1.341)	(0.148)
Ln(Relative size)	0.020***	0.020***	0.021***	-0.001	-0.002	-0.001
	(8.562)	(10.193)	(3.448)	(-0.494)	(-0.917)	(-0.544)
Ln(Deal value)	0.001	0.001	-0.013	-0.002	-0.001	-0.002
	(0.380)	(0.326)	(-0.786)	(-1.193)	(-0.733)	(-0.460)
Target's OPA	-0.028	-0.028**	-0.079	-0.004	-0.003	-0.003
	(-1.114)	(-2.145)	(-0.848)	(-0.656)	(-0.415)	(-0.589)
Target's leverage	0.000***	0.000	0.000	-0.000	-0.000	-0.000
	(4.762)	(0.472)	(1.291)	(-1.320)	(-0.603)	(-1.320)
High-tech target	-0.009	-0.009	0.026	-0.008	-0.008	-0.008
	(-0.793)	(-0.868)	(0.442)	(-1.628)	(-0.944)	(-1.557)
High-tech acquirer	0.006	0.006	-0.027	0.005	0.005	0.005
	(0.513)	(0.552)	(-0.452)	(1.149)	(0.612)	(1.026)
Target is public				-0.011*	-0.007	-0.009
				(-1.646)	(-0.701)	(-0.403)
Tender offer	0.044***	0.044***	0.019	0.015	0.015**	0.016
	(6.083)	(5.512)	(0.511)	(1.521)	(2.149)	(1.548)
Same industry	0.003	0.003	0.009	-0.013**	-0.013**	-0.013**
	(0.558)	(0.574)	(0.392)	(-2.339)	(-2.562)	(-2.344)
Acquirer pays with stock	-0.012*	-0.011*	0.015	0.005	0.004	0.005
	(-1.859)	(-1.749)	(0.449)	(1.315)	(0.785)	(0.803)
Both parties have prior relations with their advisors	-0.017**	-0.018**	-0.025	0.016	0.015**	0.016
	(-2.193)	(-2.293)	(-0.884)	(1.244)	(2.280)	(1.276)
Top-5 target advisor	-0.001	-0.002	-0.025	0.005	0.004	0.005
	(-0.187)	(-0.231)	(-0.786)	(0.592)	(0.739)	(0.568)
Top-5 acquirer advisor	0.009	0.009	0.018	-0.005	-0.006	-0.005
	(1.420)	(1.419)	(0.768)	(-0.833)	(-1.031)	(-1.009)
Target has multiple advisors	-0.003	-0.001	0.133	-0.006	-0.008	-0.007
	(-0.418)	(-0.191)	(1.012)	(-0.751)	(-1.246)	(-0.699)
Acquirer has multiple advisors	0.005	0.007	0.163	-0.013	-0.017**	-0.015
	(0.503)	(0.755)	(0.989)	(-1.524)	(-2.168)	(-1.006)
Lambda		0.032			-0.040	
		(0.204)			(0.113)	
Endogeneity test (p-value)			0.004			0.909
Number of observations	2609	2609	2609	3002	3002	3002
Adjusted R-squared	0.057			0.006		

Table 7

The impact of common advisors on target valuation multiples

The table shows coefficient estimates from OLS, Heckman two-stage treatment effect, and instrumental variable two-stage least squares (2SLS) regressions of two target valuation multiples: Deal value/Sales and Deal value/EBITDA. The sample consists of 6,272 acquisitions reported by SDC for the period 1981- 2005 in which both target and acquirer firms hire at least one financial advisor. For both treatment effect and 2SLS regressions, we use *Ln(# of IBs specializing in both industries + 1)* and the dummy variable *Both parties use multiple advisors* as instruments. The second stage of the treatment effect model uses the same covariates as the OLS and adds the inverse Mill's ratio (Lambda). Lambda is computed in the first stage of probit model (1) in Table 4. The second stage of the 2SLS regression uses the same covariates as the OLS, but instruments *Common advisor*. The p-value of the endogenity test is based on Durbin-Wu-Hausman test. The p-value of over-identification test is based on Sargan-Hansen test. We also report the F-statistic (Chi-square statistics) for the joint significance of the instruments in the first stage OLS (probit) regressions of treatment effect and 2SLS regressions. Valuation multiples are winsorized at the bottom and top 1% of the distribution to mitigate the effect of outliers. Coefficient estimates for the intercept, year dummies and industry dummies are not reported for brevity. Heteroskedasticity-consistent t-statistics are reported in parentheses below the coefficient estimates; the p-value is reported for Lambda. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests. The variables are defined in Appendix Table A.1.

Table 7 (cont'd)

	Dependent variables					
	Deal value/Sales			Deal value/EBITDA		
Independent variables	OLS	Treatment effect	2SLS	OLS	Treatment effect	2SLS
Common advisor	3.194	-6.157	-19.763**	-5.696**	-13.650	-10.976
	(1.010)	(-0.935)	(-2.088)	(-2.146)	(-1.159)	(-0.500)
Target industry median (Market cap/Sales)	2.409***	2.417***	2.355***			
	(5.986)	(7.247)	(5.862)			
Target industry median (Market cap/EBITDA)				1.333***	1.332***	1.326***
				(4.806)	(4.964)	(4.762)
Ln(Relative size)	-0.993***	-0.967***	-0.931***	-1.572***	-1.546***	-1.555***
	(-3.587)	(-4.238)	(-3.328)	(-3.082)	(-3.527)	(-3.034)
Ln(Deal value)	2.462***	2.441***	2.411***	1.625***	1.603***	1.610***
	(7.777)	(10.773)	(7.652)	(3.164)	(3.720)	(3.146)
Target's OPA	-24.031***	-24.007***	-23.987***	-70.328***	-70.401***	-70.388***
	(-8.157)	(-21.214)	(-8.082)	(-6.674)	(-13.430)	(-6.727)
Target's leverage	0.002***	0.002	0.002***	-0.004***	-0.004	-0.004***
	(2.804)	(1.189)	(3.085)	(-4.847)	(-0.888)	(-4.553)
High-tech target	0.533	0.496	0.471	6.021**	5.949**	5.989**
	(0.429)	(0.391)	(0.369)	(2.363)	(2.375)	(2.369)
High-tech acquirer	1.090	1.152	1.258	8.277***	8.374***	8.347***
	(0.809)	(0.988)	(0.899)	(2.889)	(3.641)	(2.907)
Target is public	-3.805**	-4.322***	-5.071***	-9.112***	-9.480***	-9.357***
	(-2.237)	(-3.489)	(-2.737)	(-2.815)	(-3.884)	(-2.731)
Tender offer	0.126	0.098	0.045	-3.003**	-3.032*	-3.024**
	(0.171)	(0.101)	(0.060)	(-2.064)	(-1.702)	(-2.090)
Within industry	1.418**	1.416**	1.423**	-1.011	-0.982	-0.993
	(2.248)	(2.008)	(2.231)	(-0.716)	(-0.741)	(-0.706)
Acquirer pays with stock	3.705***	3.753***	3.818***	5.263***	5.312***	5.295***
	(4.915)	(5.100)	(4.950)	(4.047)	(3.836)	(4.076)
Target has pre-deal relationship with its advisor over prior 5 yrs	-0.694	-0.718	-0.751	0.663	0.639	0.648
	(-0.918)	(-0.969)	(-0.987)	(0.450)	(0.465)	(0.439)
Target has pre-deal relationship with acquirer's advisor over prior 5 years	-3.312***	-3.063***	-2.701***	-2.128	-1.921	-1.992
	(-3.654)	(-2.631)	(-2.831)	(-1.080)	(-0.901)	(-0.970)
Acquirer has pre-deal relation with target's advisor over prior 5 years	-1.907**	-1.759**	-1.549*	0.477	0.639	0.584
	(-2.447)	(-2.060)	(-1.959)	(0.284)	(0.403)	(0.327)
Acquirer has pre-deal relation with its advisor over prior 5 yrs	0.111	0.069	0.010	-0.366	-0.396	-0.386
	(0.159)	(0.104)	(0.014)	(-0.303)	(-0.317)	(-0.318)
Relative advisor reputation	4.008	4.224	4.525	12.890**	13.086***	13.019**
	(1.309)	(1.577)	(1.491)	(2.295)	(2.640)	(2.343)
Lambda		5.163*			4.563	
		(0.059)			(0.226)	
Endogeneity test (p-value)			0.011			0.764
Over-identification test (p-value)			0.970			0.443
Number of observations	3026	3026	3026	2625	2625	2625
Adjusted R-squared	0.241			0.175		
Chi2/F statistics for IVs		59.599	61.359		54.388	59.632
p-value		(0.000)	(0.000)		(0.000)	(0.000)

Table 8

The impact of common advisors on acquisition premiums and target announcement returns

The table shows coefficient estimates from OLS, Heckman two-stage treatment effect, and instrumental variable two-stage least squares (2SLS) regressions of acquisition premium and target cumulative abnormal return CAR(-1, +1). The sample consists of 6,272 acquisitions reported by SDC for the period 1981- 2005 in which both target and acquirer firms hire at least one financial advisor. Acquisition premium is winsorized at the bottom and top 1% of the distribution to mitigate the effect of outliers. For both treatment effect and 2SLS regressions, we use the dummy variable *Both parties use multiple advisors* as the instrument. The second stage of the treatment effect model uses the same covariates as the OLS and adds the inverse Mill's ratio (Lambda). Lambda is computed in the first stage of probit model (1) in Table 4. The second stage of the 2SLS regression uses the same covariates as the OLS, but instruments *Common* advisor. The p-value of the endogenity test is based on Durbin-Wu-Hausman test. Coefficient estimates for the intercept, year dummies and industry dummies are not reported for brevity. Heteroskedasticity-consistent t-statistics are reported in parentheses below the coefficient estimates; the p-value is reported for Lambda. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests. The variables are defined in Appendix Table A.1.

	Dependent variables					
	Acquisition premium			Target CAR (-1, +1)		
Independent variables	OLS	Treatment effect	2SLS	OLS	Treatment effect	2SLS
Common advisor	-0.209**	-0.448	0.238	0.031	-0.078	-0.223
	(-2.427)	(-1.592)	(0.255)	(0.659)	(-0.873)	(-1.054)
Ln(Relative size)	-0.044***	-0.044***	-0.045***	-0.027***	-0.027***	-0.027***
	(-4.783)	(-4.731)	(-4.866)	(-8.500)	(-9.143)	(-8.322)
Ln(Deal value)	0.040***	0.040***	0.041***	0.001	0.001	0.001
	(3.956)	(4.303)	(3.872)	(0.440)	(0.379)	(0.317)
CCAR	0.974***	0.973***	0.978***	0.333***	0.333***	0.332***
	(7.409)	(10.900)	(7.486)	(8.802)	(11.731)	(8.777)
Target's OPA	-0.200**	-0.202***	-0.196**	0.014	0.013	0.012
	(-2.332)	(-3.334)	(-2.300)	(0.551)	(0.671)	(0.453)
Target's leverage	0.000***	0.000	0.000***	-0.000***	-0.000	-0.000***
	(4.255)	(0.404)	(4.251)	(-3.533)	(-0.305)	(-3.652)
High-tech target	0.163***	0.164***	0.160***	0.020	0.020	0.021
	(2.817)	(3.214)	(2.729)	(1.070)	(1.251)	(1.103)
High-tech acquirer	-0.076	-0.078	-0.073	-0.014	-0.014	-0.015
	(-1.436)	(-1.644)	(-1.347)	(-0.750)	(-0.954)	(-0.828)
Tender offer	-0.021	-0.022	-0.019	0.071***	0.071***	0.070***
	(-0.509)	(-0.589)	(-0.452)	(5.287)	(5.915)	(5.170)
Same industry	-0.045	-0.045	-0.044	-0.004	-0.004	-0.005
	(-1.497)	(-1.576)	(-1.498)	(-0.482)	(-0.499)	(-0.505)
Acquirer pays with stock	-0.113***	-0.112***	-0.116***	-0.023**	-0.023**	-0.022**
	(-3.647)	(-3.779)	(-3.663)	(-2.534)	(-2.416)	(-2.386)
Target has pre-deal relationship with its advisor	0.013	0.013	0.014	0.000	0.000	-0.000
	(0.464)	(0.460)	(0.480)	(0.021)	(0.011)	(-0.002)
Target has pre-deal relationship with acquirer's advisor	-0.102**	-0.095**	-0.113**	-0.019	-0.016	-0.012
	(-2.512)	(-2.143)	(-2.379)	(-1.515)	(-1.122)	(-0.877)
Acquirer has pre-deal relationship with target's advisor	0.011	0.014	0.006	-0.003	-0.002	0.000
	(0.320)	(0.428)	(0.162)	(-0.282)	(-0.147)	(0.021)
Acquirer has pre-deal relationship with its advisor	-0.027	-0.028	-0.025	-0.015*	-0.015*	-0.016*
	(-0.974)	(-1.051)	(-0.905)	(-1.742)	(-1.796)	(-1.853)
Relative advisor reputation	0.139	0.145	0.128	0.022	0.025	0.028
	(1.390)	(1.368)	(1.242)	(0.655)	(0.734)	(0.829)
Lambda		0.141			0.0638*	
		0.168			(0.083)	
Endogeneity test (p-value)			0.630			0.154
Number of observations	2568	2568	2568	2570	2570	2570
Adjusted R-squared	0.087			0.124		

Table 9

The impact of common advisors on the announcement returns of acquirers

The table shows coefficient estimates from OLS, Heckman two-stage treatment effect, and instrumental variable two-stage least squares (2SLS) regressions of acquirer cumulative abnormal return CAR(-1, +1). The sample consists of 6,272 acquisitions, reported by SDC for the period 1981-2005, in which both the target and acquirer hire at least one financial advisor. For both treatment effect and 2SLS regressions, we use the dummy variable *Both parties use multiple advisors* as the instrument. The second stage of treatment effect model uses the same covariates as the OLS and adds the inverse Mill's ratio (Lambda). Lambda is computed in the first stage of probit model (1) in Table 4. The second stage of the 2SLS regression uses the same covariates as the OLS, but instruments *Common* advisor. The p-value of the endogenity test is based on Durbin-Wu-Hausman test. Coefficient estimates for the intercept and year dummies are not reported for brevity. Heteroskedasticity-consistent t-statistics are reported in parentheses below the coefficient estimates; the p-value is reported for Lambda. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests. The variables are defined in Appendix Table A.1.

	Dependent variable		
	Acquirer CAR (-1,+1)		
Independent variables	OLS	Treatment effect	2SLS
Common advisor	0.006	0.059*	0.000
	(0.401)	(1.888)	(0.006)
Ln(Relative size)	0.004***	0.004***	0.004***
	(4.678)	(4.629)	(4.614)
Ln(Deal value)	-0.006***	-0.006***	-0.006***
	(-5.639)	(-6.019)	(-5.623)
High-tech target	-0.012**	-0.011**	-0.012**
	(-2.570)	(-2.473)	(-2.556)
High-tech acquirer	-0.009*	-0.009*	-0.009*
	(-1.863)	(-1.928)	(-1.862)
Industry M&A activity	-0.001	-0.001	-0.001
	(-0.809)	(-0.265)	(-0.808)
Acquirer stock volatility	0.373*	0.359***	0.374*
	(1.960)	(3.811)	(1.957)
Target industry market cap/BV	0.008**	0.007***	0.008**
	(2.563)	(3.735)	(2.564)
Target is public	-0.035***	-0.035***	-0.035***
	(-11.790)	(-9.984)	(-11.368)
Tender offer	0.027***	0.028***	0.027***
	(7.224)	(6.116)	(7.201)
Same industry	-0.001	-0.001	-0.001
	(-0.357)	(-0.424)	(-0.350)
Acquirer pays with stock	0.000	-0.001	0.000
	(0.001)	(-0.148)	(0.011)
Stock * Public target	-0.017**	-0.017***	-0.017**
	(-2.039)	(-2.783)	(-2.044)
Target has pre-deal relationship with its advisor	-0.006*	-0.006	-0.006*
	(-1.763)	(-1.540)	(-1.769)
Target has pre-deal relationship with acquirer's advisor	-0.003	-0.005	-0.003
	(-0.551)	(-0.812)	(-0.472)
Acquirer has pre-deal relationship with target's advisor	-0.003	-0.004	-0.002
	(-0.834)	(-1.088)	(-0.717)
Acquirer has pre-deal relationship with its advisor	0.004*	0.005*	0.004*
	(1.767)	(1.774)	(1.767)
Relative advisor reputation	-0.006	-0.007	-0.005
	(-0.404)	(-0.676)	(-0.389)
Lambda		-0.0263**	
		(0.036)	
Endogeneity test (p-value)			0.937
Number of observations	5433	5433	5433
Adjusted R-squared	0.088		

Table 10

Average treatment effect for the treated (ATT) of Common advisors

The table shows the average treatment effect for the treated (ATT) of Common advisors using four different matching methods. The first two (simple matching and bias-adjusted matching) are computed using Abadie et al.'s (2004) method for Abadie-Imbens matching (AIM). The last two (radius caliper matching and kernel matching) are computed using Leuven and Sianesi's (2003) method for propensity score matching (PSM). For AIM and PSM, we use all variables in model (1) of Table 4 as covariates for estimating the ATT of common advisors. We use a maximum of four nearest neighbors for AIM. We impose common support and estimate standard errors using 100 bootstrap replications for PSM. We set the caliper at 0.02 for radius caliper matching and the bandwidth at 0.06 for Epanechnikov kernel matching. Valuation multiples and acquisition premium are winsorized at the bottom and top 1% of the distribution to mitigate the effect of outliers. All variables are defined in Appendix Table A.1.

	Abadie-Imbens matching				Propensity score matching			
	Simple matching		Biased adjusted matching		Radius caliper matching		Kernel matching	
	coeff.	p-value	coeff.	p-value	coeff.	p-value	coeff.	p-value
Days to deal resolution	26.256	0.109	17.172	0.295	38.705	0.029	25.5	0.163
Deal quality:								
CCAR	-0.02	0.385	-0.012	0.594	-0.015	0.397	-0.017	0.464
Post-acquisition performance	-0.004	0.819	-0.004	0.823	0.000	0.998	0.007	0.453
Deal valuations: Multiples of:								
Sales	2.199	0.410	0.374	0.889	1.273	0.703	0.638	0.85
EBITDA	-4.571	0.154	-1.927	0.548	-6.226	0.007	-6.312	0.095
Acquisition premium	-0.250	0.046	-0.160	0.203	-0.189	0.087	-0.073	0.500
Target CAR over days (-1, +1)	0.011	0.797	0.042	0.309	-0.011	0.765	0.033	0.408
Acquirer CAR over days (-1, +1)	0.007	0.636	0.004	0.796	0.011	0.477	0.006	0.719

Table 11

Analysis of the probability of having common advisors

The table compares the actual to the predicted probability of having a common advisor. The actual probability (a) is the observed proportion of deals with common advisors during a year. The predicted probability (b) is calculated as the sum of squared M&A market shares for all advisors during the year. Each advisor's market share is based on the number of deals it advised during the year. An advisor gets credit for 0.5 deals for being the sole advisor for one side of a deal. If one party is advised by multiple advisors, each co-advisor is assigned equal partial credit for the deal (e.g., with two advisors advising one side of a deal, each co-advisor gets credit for 0.25 deals). The predicted probability of having a common advisor for a given decade (the entire sample) is computed as the weighted average of the annual probabilities of having a common advisor, where the weights are based on the proportion of the number of deals during a year out of all the deals over the decade (the entire sample). The last column shows p-values from a two-tailed test of the equality of the actual and predicted probabilities of having common advisors. The last three rows show p-values from a two-tailed test of equality of the deviations [(b) – (a)] between two decades; the deviation is the difference between the predicted and actual probabilities of deals with common advisors.

Year	Sample size	Probability (%)		Deviation:	p-value
		(a) Actual	(b) Predicted	(b) - (a)	
1981	62	1.61	6.07	4.46	0.14
1982	60	6.67	6.56	-0.11	0.97
1983	83	4.82	6.90	2.08	0.45
1984	100	6.00	6.04	0.04	0.99
1985	135	5.19	6.80	1.61	0.46
1986	183	5.46	5.55	0.09	0.96
1987	163	6.75	4.73	-2.02	0.22
1988	150	2.00	4.31	2.31	0.16
1989	161	4.97	4.30	-0.67	0.68
1990	104	0.00	4.12	4.12	0.03
1991	80	1.25	4.71	3.46	0.14
1992	118	2.54	3.71	1.17	0.50
1993	185	1.08	4.62	3.54	0.02
1994	257	1.95	3.31	1.36	0.22
1995	327	0.31	3.08	2.77	0.00
1996	404	0.99	3.31	2.32	0.01
1997	551	1.45	3.35	1.90	0.01
1998	557	0.90	3.53	2.63	0.00
1999	539	1.11	3.69	2.58	0.00
2000	518	0.77	3.83	3.06	0.00
2001	359	0.84	4.08	3.24	0.00
2002	262	0.00	3.81	3.81	0.00
2003	262	0.00	3.63	3.63	0.00
2004	322	0.00	3.09	3.09	0.00
2005	330	0.61	3.23	2.62	0.01
1981-1989	1,097	4.92	5.46	0.54	0.43
1990-1999	3,122	1.12	3.55	2.43	0.00
2000-2005	2,053	0.44	3.63	3.19	0.00
Total	6,272	1.56	3.91	2.35	0.00
p-value (1990s vs. 1980s)					0.00
p-value (2000s vs. 1990s)					0.10
p-value (2000s vs. 1980s)					0.00